Public Works Department
Bombay Province

Irrigation Administration Report

Bombay Province

Part I

For the Year 1935-36

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DIAGRAM
SHOWING
EXPENDITURE ON IRRIGATION WORKS
IN THE PUBLIC WORKS DEPARTMENT
FROM
LOAN FUNDS, REVENUE & CONTRIBUTION

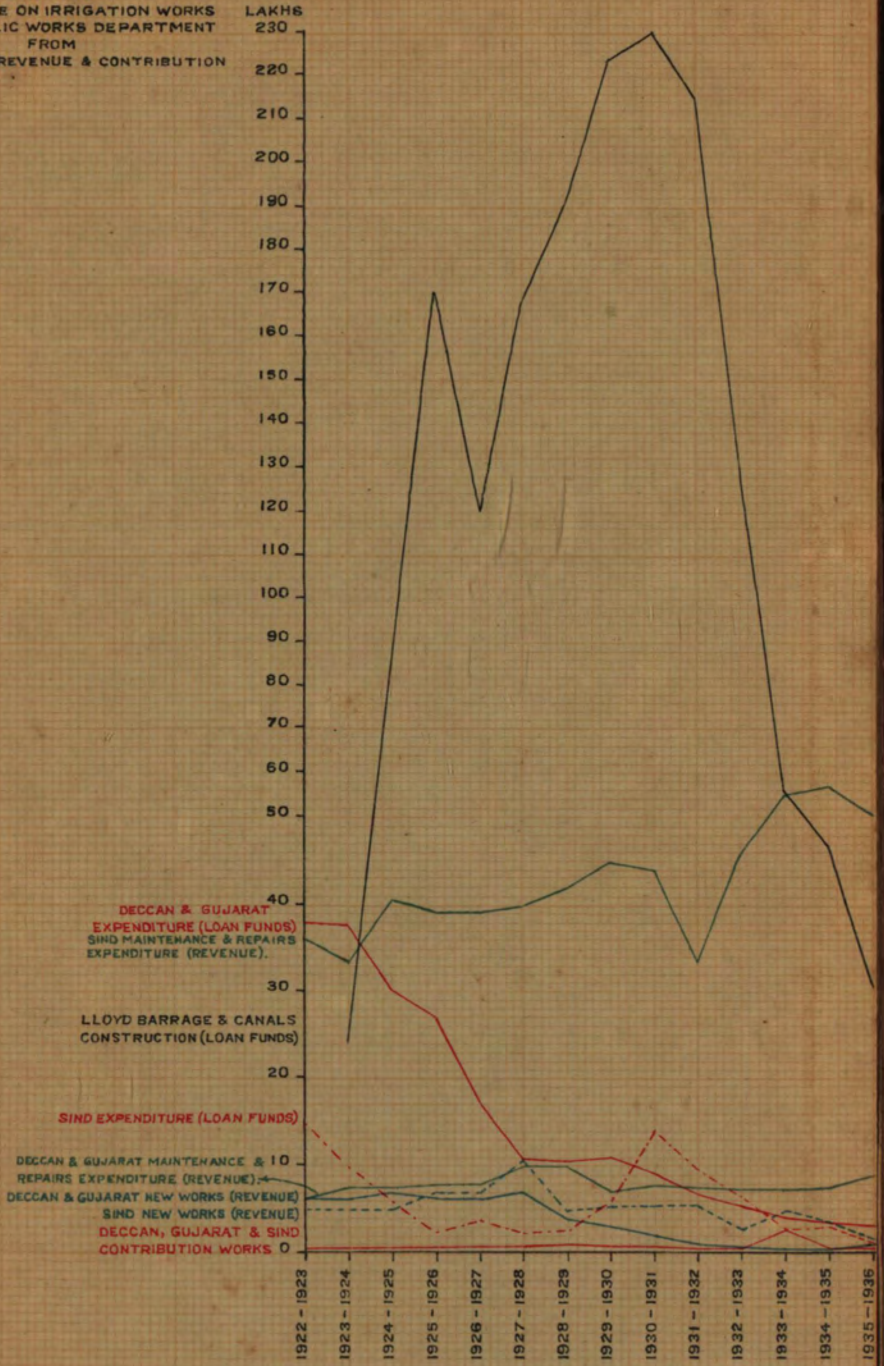

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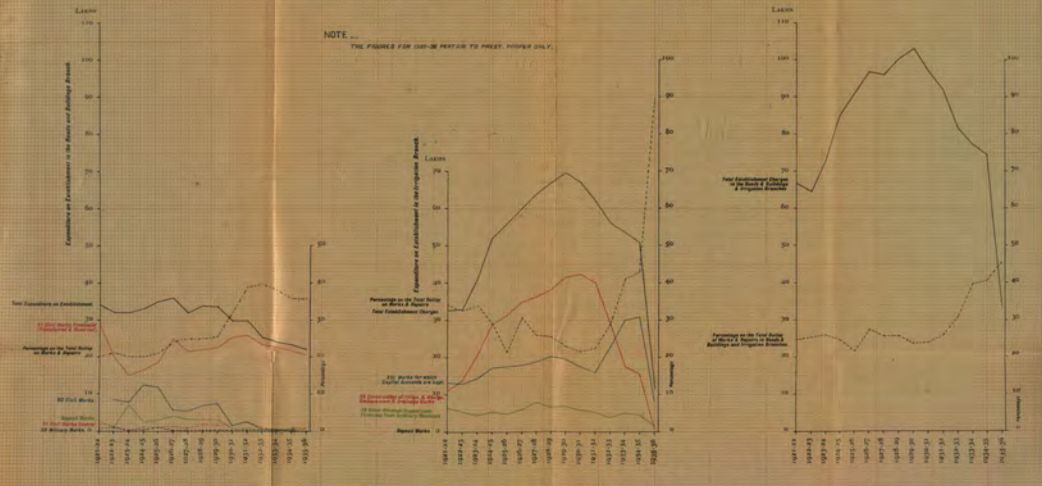
DIAGRAM SHOWING EXPENDITURE
ON ESTABLISHMENT
IN THE
ROADS & BUILDINGS & IRRIGATION BRANCHES
OF THE
PUBLIC WORKS DEPARTMENT
AND
PERCENTAGES TO THE TOTAL OUTLAY ON WORKS AND REPAIRS



NOTE.—
THE FIGURES FOR 1935-36 PERTAIN TO PRESY. PROPER ONLY.

Govt. Photozincographic Dept., Poona, 1937

Statement showing expenditure on establishment in the Roads and Buildings and the Irrigation Branches of the P. W. D. from the year 1921-22 to 1935-36 and the percentage on the total outlay on works and repairs during that period in both the Branches.

Year.	Expenditure on Establishment in the Roads and Buildings Branch.							Expenditure on Establishment in the Irrigation Branch.
	41—Civil Works—Provincial (Transferred and Reserved).	60—Civil Works.	41—Civil Works—Central.	50—Military Works.	Deposit Works.	Total.	Percentage on the total outlay on works and repairs in the Roads and Buildings Branch.	55—Construction of Irrigation, Navigation, Embankment and Drainage Works.
1	2	3	4	5	6	7	8	9
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.
1921-22 ..	29,06,955	..	1,98,683	45,258	2,84,992	34,35,888	19·26	11,53,734
1922-23 ..	20,14,640	8,34,450	1,78,163	71,481	77,143	31,75,877	20·79	14,20.751
1923-24 ..	15,84,488	8,10,645	67,892	38,560	6,88,354	31,89,939	19·88	21,87,793
1924-25 ..	16,89,892	12,25,632	1,19,721	27,862	2,52,556	33,15,663	19·67	29,10,785
1925-26 ..	18,89,417	12,05,078	1,01,876	69,049	2,58,535	35,23,955	20·66	32,21,647
1926-27 ..	25,30,286	5,97,486	1,68,896	5,882	3,94,389	36,96,939	23·76	35,56,959
1927-28 ..	21.99,448	5,59,107	1,49,132	5,042	2,97,270	32,09,999	24·96	36,98,956
1928-29 ..	22,40,393	6,56,713	2,29,540	2,240	2,56,180	33,85,066	25·03	39,04,670
1929-30 ..	22,45,450	7,33,867	1,56,773	3,638	2,34,897	33,74,625	25·26	42,26,873
1930-31 ..	25,51,711	1,80,139	1,72,163	2,415	85,444	29,91,872	32·35	42,88,966
1931-32 ..	25,93,104	2,32,929	1,22,799	3,182	44,132	29,96,146	38·70	40,37,972
1932-33 ..	23,74,603	71,981	85,143	3,334	17,156	25,52,217	39·79	28,70,427
1933-34 ..	22,73,945	31,807	71,866	3,810	30,502	24,11,930	37·97	17,60,090
1934-35 ..	21,88,729	38,278	62,472	2,693	47,694	23,39,866	35·82	15,36,830
1935-36* ..	20,51,807	808	89,984	1,539	54,593	21,98,731	35·75	1,37,301

Year.	Expenditure on Establishment in the Irrigation Branch—*contd.*					Total Establishment charges in the Roads and Buildings and Irrigation Branches.	Percentage on the total outlay of works and repairs in Roads and Buildings and Irrigation Branches.
	XIII—Works for which capital accounts are kept.	15—Other Revenue Expenditure financed from Ordinary Revenues.	Deposit Works.	Total Establishment charges.	Percentage on the total outlay on works and repairs in the Irrigation Branch.		
1	10	11	12	13	14	15	16
	Rs.	Rs.	Rs.	Rs.		Rs.	
1921-22 ..	13,85,960	6,68,651	2,770	32,11,115	33·59	66,47,003	24·26
1922-23 ..	13,44,901	5,34,327	1,993	33,01,972	32·22	64,77,849	25·38
1923-24 ..	14,43,222	4,32,013	2,056	40,65,084	33·89	72,55,023	25·87
1924-25 ..	17,37,724	5,26,361	492	51,75,362	28·73	84,91,025	24·35
1925-26 ..	17,99,343	5,19,228	2,681	55,42,899	21·62	90,66,854	21·23
1926-27 ..	18,08,385	5,94,989	3,207	59,63,540	30·56	96,60,479	27·54
1927-28 ..	19,20,773	7,80,312	3,847	64,03,888	26·00	96,13,887	25·64
1928-29 ..	21,35,939	6,16,601	2,750	66,59,960	25·51	1,00,45,026	25·35
1929-30 ..	21,08,302	6,18,312	1,012	69,54,499	23·26	1,03,29,124	23·88
1930-31 ..	18,31,149	5,99,621	1,734	67,21,470	21·60	97,13,342	24·06
1931-32 ..	16,34,011	5,18,627	86	61,90,696	22·40	91,86,842	25·97
1932-33 ..	23,53,971	4,01,329	680	56,26,407	28·54	81,78,624	31·30
1933-34 ..	29,83,531	5,14,407	48,960	53,06,988	40·41	77,18,918	39·61
1934-35 ..	30,98,255	4,55,037	441	50,90,563	42·89	74,30,429	40·38
1935-36* ...	8,66,476	1,73,501	61	11,77,339	89·46	33,76,070	45·21

NOTE.—The percentage of the establishment charges on the cost of works and repairs in the Irrigation Branch (column 14) is generally higher than that in the Roads and Buildings Branch (column 8). The reason is largely that the establishment charges in the Irrigation Branch include the cost of Special Revenue Establishment employed entirely on "revenue management" work on certain canal systems which has no connection with the execution of works and repairs, and that these charges also include cost of part of the time of Irrigation establishment spent on revenue management including the *control and distribution of water*, which is debited in the accounts to "revenue management" and not to execution of works and repairs. If these establishment charges debited in the accounts to "revenue management" are deducted from the total cost of establishment in the Irrigation Branch the percentage on the cost of works and repairs will not be so divergent. The increase in the rate per cent. in the R. & B. Branch is mainly due to decrease in outlay on "works" and "repairs". Establishment charges cannot be reduced in the same ratio in which expenditure on works is reduced. A mere overall percentage on expenditure on works is inaccurate.

* The figures for the year 1935-36 pertain to the Presidency proper only.

IRRIGATION ADMINISTRATION REPORT, BOMBAY PROVINCE—PART I

1935-36

PHYSICAL FEATURES—GENERAL DESCRIPTION OF IRRIGATION.

The area under irrigation in the Deccan and Gujarat is not compact. Rainfall is available for agricultural operations but is often precarious. Tanks and canals provide irrigation for valuable crops such as sugarcane and also provide a source of supply to other crops when the rainfall is deficient or irregular. The old irrigation works consist chiefly of a few small canals and moderately large tanks, some 12,000 smaller tanks mostly in the southern part of the Province and in Gujarat, and of about 400 bandharas in Nasik and Khandesh Districts. The tanks have earthen dams and the larger ones irrigate areas up to 1,300 acres, and the smaller ones up to 500 acres, situated immediately below the dams. The chief crop irrigated is rice. The bandharas are masonry weirs built across rivers to head up the water to a level sufficient to irrigate lands on the banks of the streams by means of channels taking off from the flanks of the bandharas. The areas irrigated are up to 800 acres and the chief crops are sugarcane, wheat, bajri and gram. From these small beginnings have evolved the magnificent irrigation works, which now form such a conspicuous feature in the Deccan and have so successfully fulfilled their beneficent purpose in banishing the famines which formerly devastated this portion of the Province.

2. The irrigation works in the Deccan are fundamentally different from those in Sind, the Punjab, Egypt or Mesopotamia, where wide alluvial plains have been formed by great deltaic rivers in perennial flow. The Bombay Deccan consists of a sloping table-land running eastward from the ridge of the Western Ghats. These form a ridge running parallel to the sea-coast at a distance from it of 50 to 100 miles; precipitous on the western side, they fall away more gradually to the east. The heaviest rainfall occurs on the peak of the ridge, where anything up to 270 inches of rain is recorded in the four monsoon months. The intensity of the rainfall rapidly decreases as we go eastward from the highest ridge, reaching a figure of 20 or 25 inches at a distance of 100 or 150 miles east of the Ghats. The rivers in the Deccan rise in the valleys close to the ridge, flow in an eastward direction, and are dry or practically so for 7 or 8 months of the year. The line of the Ghats, like the ridge of a roof, divides the rainfall into two parts; one the smaller portion falling westward into the Indian Ocean, and the other flowing through long lengths of tortuous rivers to the east and joining the rivers, which reach the sea on the south-eastern coast of the peninsula. These rivers are in flow during the

monsoon months only, and if no artificial means of conserving their waters were provided, the whole monsoon rainfall would be wasted so far as the Bombay Deccan is concerned, and would simply flow away to the sea, benefiting but to a small extent the country traversed.

3. The large irrigation systems in the Deccan are all of the same type. Each depends upon a storage lake near the head of one of the river valleys, where sufficient water is collected during the monsoon to supply the country on either side of the river valley below. The water stored during the rains is let out during the dry months of the year in accordance with requirements; and at a point on the river, which may be as far as 50 miles from the main storage lake, a " pick-up-weir " is constructed across the river-course to divert the water into canals which take off on either side of the weir. In one case only, that of Lake Fife at Khadakwasla near Poona, do the canals take off from the flanks of the dam itself. The canals are always constructed at a considerably flatter slope than that of the river, and consequently are able to diverge from the river itself on each side of the valley; as a rule each canal only irrigates the area between itself and the river.

SECTION I

COMPRISING IRRIGATION WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.

GENERAL REMARKS.

Works in operation.

4. The following list includes all the works in operation (43 in number) :—

Serial Number.	Name of Work.	Area of four months' crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon and 120 acres for the rabi season per cusec..	Whether supply is reliable or dependent on local rain.	Whether storage works completed or proposed.	Remarks.
		Acres.			
1	Hathmati and Khari Cut Canals.	24,000	Dependent on local rain.	No storage work. Bokh reservoir, Chandola tank and Wasai reservoir completed.	The catchment of the Hathmati river is hilly, covered partly with forest and that of the Khari is undulating ground at its source and then plain ground with cultivated fields. The supply depends upon the flow in the rivers, and the contents of the Bokh reservoir, Chandola tank and Wasai reservoir.
2	Wangroli Tank ..	3,400	Do. ..	Completed ..	The catchment is ordinary plain ground and cultivated fields.
3	Savli Tank ..	3,000	Do. ..	Do. ..	Ordinary catchment on undulating ground.
4	Saiat Tank ..	2,000	Do. ..	Do. ..	Ordinary catchment on flat ground.
5	Tranza Nagrama Tanks.	800	Do. ..	Do. ..	The Tranza tank has no independent catchment. The Nagrama has a catchment of 1·5 sq. miles. Both are fed by the Matar drainage channel which is not reliable as it seldom flows.
6	Futelao Tank ..	800	Do. ..	Do. ..	Hilly catchment.
7	Nira Left Bank Canal including Shetphal Tank.	100,000	Reliable ..	Lake Whiting (Lloyd Dam) completed.	Ghat catchment.
8	Nira Right Bank Canal.	180,000	Do. ..	Do. ..	Do.
9	Mhaswad Tank ..	14,000	Dependent on local rain.	Completed ..	Deccan catchment.
10	Mutha Canals including Matoba Tank.	49,000	Reliable ..	Lake Fife completed.	Ghat catchment.
11	Kasurdi Tank ..	40	Dependent on local rain.	Completed ..	Deccan catchment.
12	Shirsuphal Tank ..	1,150	Do. ..	Do. ..	Do.
13	Bhadalvadi Tank ..	1,225	Do. ..	Do. ..	Do.

Serial Number.	Name of Work.	Area of four months' crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon and 120 acres for the rabi season per cusec.	Whether supply is reliable or dependent on local rain.	Whether storage works completed or proposed.	Remarks.
		Acres.			
14	Godavari Right Bank Canal. Godavari Left Bank Canal.	44,000 26,000	Reliable ..	Lake Beale completed.	Ghat catchment.
15	Girna Canal ..	9,000	Do. ..	Chankapur Tank completed.	Do.
16	Kadwa River Works. Palkhed Canal. Ojhar Tambat Canal. Wadali Canal.	7,689	Do. ..	Waghad Tank completed.	Do.
17	Parsul Tank ..	1,440	Dependent on local rain.	Completed ..	Deccan catchment.
18	Pravara Right Bank Canal. Pravara Left Bank Canal.	18,480 64,080	Reliable ..	Lake Arthur Hill (Wilson Dam) completed.	Ghat catchment.
19	Bhatodi Tank ..	1,461	Dependent on local rain.	Completed ..	Deccan catchment.
20	Ekruk Tank ..	13,070	Do. ..	Do. ..	Do.
21	Koregaon Tank ..	416	Do. ..	Do. ..	Hilly catchment.
22	Ashti Tank ..	3,382	Do. ..	Do. ..	Deccan catchment.
23	Pathri Tank ..	3,094	Do. ..	Do. ..	Hilly catchment.
24	Jamda Canals ..	42,000	Girna river supply not reliable.	Water is issued from the Chankapur Tank when available.	Ghat catchment for a small part and for the rest Deccan catchment.
25	Hartala Tank ..	978	Dependent on local rain.	Completed ..	Deccan catchment.
26	Mhaswa Tank ..	3,256	Do. ..	Do. ..	Do.
27	Shahada Channel ..	2,000	Reliable ..	No storage work ..	Hilly catchment. Supply is perennial.
28	Lower Panjhra River Works.	8,173	Panjhra river supply not reliable.	Mukti Tank completed.	Ghat catchment for one part and Deccan catchment for the rest.
29	Krishna Canal ..	6,412	Reliable ..	Proposed ..	Ghat catchment.
30	Rewari Canal ..	439	Dependent on local rain.	No storage work ..	Deccan catchment.
31	Upper Man River Works.	373	Do. ..	Pingli Tank completed.	Do.
32	Yerla River Irrigation Works.	1,182	Do. ..	Nehr Tank completed.	Do.
33	Chikhli Canal ..	358	Do. ..	No storage work.	Do.

Serial No.	Name of work.	Area of four months' crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon and 120 acres for the rabi season per cusec.	Whether supply is reliable or dependent on local rain.	Whether storage works completed or proposed.	Remarks.
		Acres.			
34	Maini Tank ..	455	Dependent on local rain.	Completed ..	Deccan catchment.
35	Gadikeri Tank ..	416	Do. ..	Do. ..	Do.
36	Gokak Canal ..	17,627	Reliable ..	27′ completed ..	Ghat catchment.
37	Muchkundi Tank ..	750	Dependent on local rain.	Completed ..	Deccan catchment.
38	Dambal Tank ..	531	Do. ..	Do. ..	Do.
39	Medleri Tank ..	231	Do. ..	Do. ..	Do.
40	Madag Tank ..	1,418	Do. ..	Do. ..	Ghat and Forest catchment.
41	Asundi Tank ..	503	Do. ..	Do. ..	Deccan catchment.
42	Dharma Canal ..	For monsoon season 6,580 acres. For *rabi* nil.	Do. ..	No storage work. The canal takes off from the river itself.	Forest catchment.
43	Mavinkop Tank ..	617	Do. ..	Completed ..	Do.

Ekruk tank, Gadikeri tank, Mavinkop tank and Shahada channel are the only productive works and the rest are unproductive.

5. The interest account for the year was as follows :—

—	Productive Works.	Unproductive Works.	Total.
	Rs.	Rs.	Rs.
Total interest charges during 1935-36 ..	46,429	41,65,401	42,11,830
Net revenue realised during 1935-36 ..	1,19,474	9,87,593	11,07,067

Net loss, i.e. difference between interest and net revenue—Rs. 31,04,763.

6. The financial results of the year by main heads were as under :—

—	Area irrigated.	Revenue realised.			Working expenses.	Net revenue.
		Direct receipts.	Share of land revenue.	Total.		
	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.
Productive	5,768	1,36,698	9,428	1,46,126	26,652	1,19,474
Unproductive	208,535	26,69,143	14,798	26,83,941	16,96,348	9,87,593
Total ..	*214,303	28,05,841	24,226	28,30,067	17,23,000	11,07,067

* Inclusive of 8,809 acres under consolidated assessment.

The gross revenue and the net revenue show decreases of Rs. 1,66,018 and Rs. 3,43,600 respectively, as compared with the figures for the previous year.

Areas irrigated, revenue, etc.

7. The figures of area irrigated, revenue assessed and realised and working expenses, as compared with those of the previous three years, are given below :—

Year.	Area irrigated.*	Revenue.		Working expenses.
		Assessment.	Realisations.	
	Acres.	Rs.	Rs.	Rs.
1932-33	194,438	24,42,470	26,61,613	15,27,914
1933-34	213,047	24,04,530	25,45,579	15,14,400
1934-35	214,253	25,66,862	29,96,085	15,45,418
Average ..	207,246	24,71,287	27,34,426	15,45,910
1935-36	214,303	28,03,346	28,30,067	17,23,000

* Inclusive of the area under consolidated water and land assessment.

8. The gross area under command is 1,799,000 acres. The area irrigable at present is 838,000 acres.

9. The state of Revenue collections was as follows :—

		Rs.
Balance of demands unrealised at the commencement of the year		17,27,907
	Rs.	
Demands of the year—		
Rabi, 1934-35 ..	3,52,970	
Kharif, 1935-36 ..	19,79,861	
Miscellaneous receipts ..	4,49,084	
		27,81,915
Total ..		45,09,822
Deduct—		
Remissions		89,035
Net total ..		44,20,787
Amount unrealised at the close of the year		16,03,443
	Rs.	
Actual receipts of the year ..	28,17,344	
Add—Share of land revenue ..	24,226	
		28,41,570
Deduct—Refunds of revenue		11,503
Revenue realised		28,30,067

The remissions and refunds together amounted to Rs. 1,00,538.

Unrealised irrigation revenue at the close of the year amounted to Rs. 16,03,443 which is made up as follows :—

	Rs.
Ekruk Tank	6,633
Hathmati and Khari Cut Canals	60,958
Krishna Canal	87,985
Ashti Tank	4,412
Lower Panjhra River Works	5,735
Mutha Canals and Matoba Tank	1,12,585
Gokak Canal	25,187
Mhaswad Tank	5,279
Jamda Canals	6,869
Pathri Tank	5,890
Nira Left Bank Canal and Shetphal Tank ..	3,08,671
Kadwa River Works	68,681
Chankapur Tank—Girna Canal	26,808
Godavari Canals	1,72,013
Nira Right Bank Canal	3,18,663
Pravara River Works	3,62,495
Other Works	24,579
Total ..	16,03,443

Working expenses.

10. The working expenses of the year amounted to Rs. 17,23,000 as compared with Rs. 15,45,418 during the previous year. The following table compares the charges under the principal heads with those of the previous three years :—

—	1932-33.	1933-34.	1934-35.	1935-36.
	Rs.	Rs.	Rs.	Rs.
Works	11,124	23,069	38,862	67,604
Repairs	5,31,747	5,38,258	5,56,315	6,64,485
Establishment	9,64,429	8,84,686	8,69,891	9,11,468
Tools and Plant	10,023	8,019	9,177	10,078
Total in the Public Works Department ..	15,17,323	14,54,032	14,74,245	16,53,635
Collection charges	55,172	54,762	65,228	62,049
Indirect charges	5,419	5,606	5,945	7,316
Total working expenses ..	15,77,914	15,14,400	15,45,418	17,23,000

Details of working expenses.

11. The following table gives the details of working expenses for some of the principal works :—

Name of work.	Average incidence of water rate per acre.	Cost of measurement.		Working expenses in the P. W. Department.	
		Total cost.	Per acre.	Per mile of canal.	Per acre irrigated.
	Rs.	Rs.	Rs. a. p.	Rs.	Rs.
Nira Left Bank Canal and Shetphal Tank	10·83	1,225	0 0 5	2,104	3·71
Pravara Canals	19·54	380	0 0 5	2,231	9·48
Girna Canal	10·30	778	0 1 6	2,464	5·28
Godavari Canals	14·86	405	0 0 7	3,090	22·52
Mutha Canals and Matoba Tank ..	15·55	512	0 0 9	1,114	8·48
Kadwa River Works	8·90	103	0 0 6	999	5·49
Mhaswad Tank	4·79	60	0 0 3	326	6·02
Nira Right Bank Canal	9·08	480	0 0 3	2,154	11·37
Krishna Canal	15·09	467	0 1 11	306	4·42
Yerla River Irrigation Works ..	6·11	104	0 0 11	231	4·41
Upper Man River Works ..	5·87	30	0 0 8	315	6·31
Jamda Canals	7·86	51	0 0 7	506	15·86
Ekruk Tank	7·29	198	0 1 0	403	6·20
Ashti Tank	5·07	126	0 0 10	3,269	40·32
Maini Tank	5·00	24	0 0 3	454	2·31
Gokak Canal	5·73	483	0 0 11	272	1·70
Dharma Canal	5·44	130	0 4 3	67	0·32

Gross assessed revenue.

12. The gross assessed revenue, direct and indirect, amounted to Rs. 28,03,346 as compared with Rs. 25,66,862 in the previous year. The details of the gross assessment are as under :—

——	Direct revenue.			Indirect revenue.	Total.
	Water rate.	Other receipts.	Total.		
	Rs.	Rs.	Rs.	Rs.	Rs.
Productive	27,506	1,12,519	1,40,025	9,428	1,49,453
Unproductive..	23,02,530	3,36,665	26,39,095	14,798	26,53,893
Total ..	23,30,036	4,49,084	27,79,120	24,226	28,03,346

The net assessed revenue of the year, after deducting working expenses (Rs. 17,23,000), amounted to Rs. 10,80,346 as compared with Rs. 10,21,444 during the previous year.

13. The following table gives the percentage return earned during the year on capital outlay on the principal works in operation :—

—	Total capital outlay (direct and indirect).	Gross receipts (direct and indirect),	Working expenses (direct and indirect).	Net revenue.	Percentage return on capital outlay.
	Rs.	Rs.	Rs.	Rs.	
Ekruk Tank	13,40,386	1,33,378	19,350	1,14,028	8·50
Hathmati and Khari Cut Canals ..	13,18,729	1,37,267	38,719	98,548	7·47
Nira Left Bank Canal and Shetphal Tank.	1,42,96,733*	7,59,725	2,25,139	5,34,586	3·74
Nira Right Bank Canal ..	4,11,29,169	3,32,384	3,51,226	—18,842	..
Mhaswad Tank	20,96,016	27,083	21,528	5,555	0·22
Mutha Canals and Matoba Tank ..	69,70,153	4,13,635	98,048	3,15,587	4·53
Godavari Canals	1,05,71,737	2,55,625	3,77,051	—1,21,426	..
Chankapur Tank—Girna Canal ..	20,56,431	85,969	46,828	39,141	1·90
Kadwa River Works	10,35,876	20,998	23,967	—2,969	..
Pravara River Works	1,50,16,490	3,80,987	2,56,590	1,24,397	0·83
Lower Panjhra River Works ..	4,68,621	24,294	3,969	20,325	4·33
Krishna Canal	9,49,807	64,576	19,575	45,001	4·73
Gokak Canal	14,66,673	45,761	14,062	31,699	2·16

* Inclusive of proportionate expenditure on the old Bhatgar Dam and the New Lloyd Dam.

14. The average water rates per acre of land actually irrigated were :—

	Rs.
Productive works	7·29
Unproductive works	11·41

15. The water rate assessments and other receipts compare with those of the previous year as under :—

	1934-35.	1935-36.
	Rs.	Rs.
Water rates	20,92,944	23,30,036
Other receipts—		
Plantations	6,671	7,773
Water power	14,313	14,313
Miscellaneous	4,24,714	4,26,998
Total ..	4,47,698	4,49,084
Share of land revenue ..	26,220	24,226
Grand Total ..	25,66,862	28,03,346

16. The principal crop acreages irrigated during 1934-35 and 1935-36 are given below :—

Crop acreages.

	1934-35.	1935-36.
	Acres.	Acres.
Garden and orchards	7,182	6,442
Sugarcane	35,777	45,107
Wheat	9,747	7,426
Rice	20,503	6,577
Jowar	29,730	33,014
Bajri	10,591	9,834
Gram, etc.	14,434	12,570
Groundnut	5,409	10,060
Cotton	17,152	23,148
Condiments	7,748	6,080

The total estimated value of the crops irrigated was Rs. 153·20 lakhs as compared with Rs. 145·08 lakhs during the previous year.

17. The following table shows the total number of ordinary wells in actual use, total area irrigated by them, etc., in the Deccan and Gujarat :—

Total number of ordinary wells in actual use. 1	Total area irrigated by wells shown in column 1 during 1935-36. 2	Total number of wells in working order but not used. 3	Total number of abandoned wells. 4
	Acres.		
303,104	676,082	52,599	53,077

DETAILED REPORTS BY LOCAL OFFICERS.

NORTHERN CIRCLE.

The year under review was marked by a poor monsoon, which broke in the last week of June and ended by the middle of September. The rainfall was below normal and of low intensity with the result that it was inadequate for rice crops and for storage. There was very little run-off from the catchments of the rivers. The little available flow in the Hathmati river was utilised in filling up the reservoirs and for rice transplantation. The transplanted area was protected by canal water and brought to maturity. The surplus water was utilised to protect the crops in the Rabi season. The total area protected by irrigation under the Hathmati and Khari Cut Canals, including the area in the Kalambandhi villages of the Khari Sluices system, was about 14,332 acres.

The rainfall gauged at Ahmedabad and at Prantij was 22·00 and 19·25 inches, respectively, as compared with 40·80 and 38·08 inches, the average precipitation, respectively, of the last three years. Similarly at Bareja, which is situated in the centre of the area irrigated by the Khari Cut Canal, the rainfall was 19·31 inches as compared with 29·79 inches, the average of the last three years. At Himatnagar, where the Head works of the

Hathmati Canal are situated, it was 22·66 inches as compared with 36·45 inches, the average of the past three years.

The principal irrigation works in operation in this Circle are (1) the Hathmati and Khari Cut Canals, (2) the Wangroli Tank, (3) the Savli Tank, (4) the Saiat Tank, (5) the Tranza Nagrama Tanks and (6) the Futelao Tank.

No. (1) has no arrangement for storage and thus the canals depend on local rainfall.

The six works are financially unproductive, as the annual revenue derived therefrom is not sufficient to cover the working expenses.

AHMEDABAD AND KAIRA AND PANCH MAHALS DIVISIONS.

HATHMATI AND KHARI CUT CANALS.

This is the most important canal system in Gujarat. The Hathmati Canal irrigates a tract of land lying between the Sabarmati and Khari rivers and this system in addition to irrigating the area dependent on it, is designed to pass surplus water, when available, first into the Bokh Reservoir and then into the Khari river direct via the Bhujwa Channel. The Bokh Reservoir does not provide any direct irrigational supplies but only acts as a storage reservoir for the Khari Cut Canal. Further down-stream on the Khari river are situated two small irrigation systems and these utilise the natural flow of the river and also any surplus water which can be made available from the Hathmati Canal; the Khari water is abstracted at the so-called " Khari sluices " for direct irrigational purposes, while the surplus water from the Hathmati is diverted through an artificial cut, called " the Khari Cut," into a natural channel, and this in its turn supplies a system of distributaries, several small tanks and the large Chandola Tank situated near Ahmedabad. The system was first opened in 1873-1874 and has cost more than Rs. 13 lakhs.

The Hathmati river was in flood only on three occasions owing to poor rainfall in the catchment of the river. The floods were of short duration and of limited volume. The greatest depth of water over the weir crest was 1 foot on 21st July 1936, when the discharge was 2,734 cusecs. The area irrigated under this canal was 805 acres in the Kharif season and 1,697 acres in the Rabi season. The average daily discharge admitted into the canal at its head during the Kharif season was 153 cusecs of which quantity only 66 cusecs were utilised for irrigation carried out under the canal, the balance being let down into the Bokh Reservoir and the Bhujwa channel for supply to irrigation carried out under the Khari Cut Canal and for filling up the reservoirs and tanks situated thereunder. During the Rabi season an average daily discharge of 53 cusecs was obtained from the river of which quantity 49 cusecs were utilised for irrigational purposes, and the remaining 4 cusecs were used in filling village tanks for domestic use.

The Khari river rose in flood moderately only twice in the earlier part of the season. The flood waters were not drawn into the Khari Cut Canal but were passed down to the Kalambandhi villages under this canal. 3,804 acres were irrigated in the Kharif season under the canal and 1,319 acres in the Rabi season.

The areas irrigated, the revenue assessed and the working expenses in connection with the Hathmati and Khari Cut Canals compare with the average of the three preceding years as under :—

Year.	Kharif.		Rabi.		Total.		Working expenses.
	Area irrigated.	Assessment.	Area irrigated.	Assessment.	Area irrigated.	Assessment.	
	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Rs.
Average	10,317	61,745	2,734	8,109	13,051	69,854	36,563
1935-36	4,609	26,145	3,016	7,616	7,625	33,761	38,719

The remissions sanctioned during the year amounted to Rs. 668. The gross revenue realised from all sources amounted to Rs. 1,35,074, while the working expenses were Rs. 38,719. These figures show a gross return of 7·31 per cent. on the total capital outlay.

The construction of the Lambha branch of the Khari Cut Canal was completed during the year under report and a sum of Rs. 370 was spent in raising the banks wherever necessary. The total expenditure incurred on the work including the amount spent during the year amounted to Rs. 3,681 against the estimated amount of Rs. 3,682. This work has proved very useful to the cultivators of Lambha village, as it facilitates the irrigation of their lands situated at a long distance from the main canal.

FIRST CLASS IRRIGATION TANKS IN GUJARAT.

The five first class tanks, viz., Wangroli, Savli, Saiat, Tranza Nagrama and Futelao were constructed between the years 1904 and 1917 at the aggregate cost of Rs. 11 lakhs. They rarely yield any net return, as the demand for water from them is small in years of good rainfall, while in years of scarcity the tanks themselves store deficient supplies. The first four tanks are situated in the Kaira Collectorate, while the last one is in the Broach and Panch Mahals Collectorate.

The areas irrigated, the revenue assessed and the working expenses in connection with the tanks during the year are compared with the average of the preceding three years as below :—

Name of tank.	Year.	Kharif.		Rabi.		Total.		Working expenses.
		Area irrigated.	Assessment.	Area irrigated.	Assessment.	Area irrigated.	Assessment.	
1	2	3	4	5	6	7	8	9
		Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Rs.
Wangroli.. ..	Average ..	1,270	6,317	303	1,194	1,573	7,511	7,399
	1935-36 ..	765	3,877	168	668	933	4,545	7,457
Savli	Average ..	1,846	9,364	5	18	1,851	9,382	6,361
	1935-36 ..	532	2,785	47	187	579	2,972	6,179
Saiat	Average ..	307	1,330	193	773	500	2,103	4,228
	1935-36 ..	277	1,321	139	568	416	1,889	4,014
Tranza Nagrama ..	Average ..	76	282	8	32	84	314	2,415
	1935-36 ..	..	..	..	..	..	..	2,089
Futelao	Average ..	15	82	49	149	64	231	1,385
	1935-36 ..	..	..	..	..	..	..	1,389

WANGROLI TANK.

The rainfall gauged at the site of the tank was 28·80 inches. The tank was partially filled during the year under report and the water was utilised in irrigating the Kharif and Rabi crops (mainly rice, wheat and gram). The miscellaneous revenue realised amounted to Rs. 797 compared with Rs. 1,124, received during the previous year.

SAVLI TANK.

The rainfall gauged at the site of the tank was 26·35 inches. The tank was partially filled and the water was utilised in irrigating the Kharif crops, which were mainly rice. Rabi irrigation was negligible. The miscellaneous revenue realised amounted to Rs. 712 compared with Rs. 1,213, received during the previous year.

SAIAT TANK.

The rainfall gauged at the site of the tank was 27·04 inches. The tank was partially filled and the water was utilised in irrigating both Kharif and Rabi crops, these being rice, wheat and gram. The miscellaneous revenue realised amounted to Rs. 729 compared with Rs. 772, received in the previous year.

TRANZA NAGRAMA TANKS.

The rainfall gauged at Nagrama was 21·95 inches and it was about the same at Tranza. The tanks did not fill during the year and hence there was no irrigation either in the Kharif or the Rabi season. The miscellaneous revenue realised amounted to Rs. 1,192 compared with Rs. 847, received in the previous year. A remission of Rs. 1-8-0 was sanctioned during the year.

FUTELAO TANK.

The rainfall gauged at the site of the tank was 19·90 inches during the year. The tank did not fill and consequently there was no irrigation under it. The miscellaneous revenue realised amounted to Rs. 79 compared with Rs. 70 of the previous year. A remission of Rs. 3 was sanctioned during the year.

The percentage returns obtained during the year from the working of these tanks are shown below :—

Name of tank.	Gross assessment.	Gross realisation.	Less working expenses.	Net revenue.	Capital outlay direct and indirect to end of 1935-36.	Percentage return.
	Rs.	Rs.	Rs.	Rs.	Rs.	
Wangroli	5,342	7,124	7,457	— 333	2,93,295	—0·11
Savli	3,684	11,779	6,179	5,600	2,55,210	2·19
Saiat	2,618	3,750	4,014	— 264	1,84,029	—0·14
Tranza Nagrama ..	1,192	1,694	2,089	— 395	2,80,635	—0·14
Futelao	79	464	1,389	— 925	1,16,461	—0·79

DECCAN IRRIGATION CIRCLE.

The rainfall was below normal in the Nira Left Bank Canal and the Mutha Canals tracts. It was however ample and on the whole above normal in the Nira Right Bank Canal tract. In the Pravara Canals tract, the rainfall was sufficient and well distributed over the irrigated tract as a result of which there was no heavy demand for water for seasonal irrigation. In the Godavari Canals tract, the rainfall was satisfactory in the catchment as well as in the canal tract.

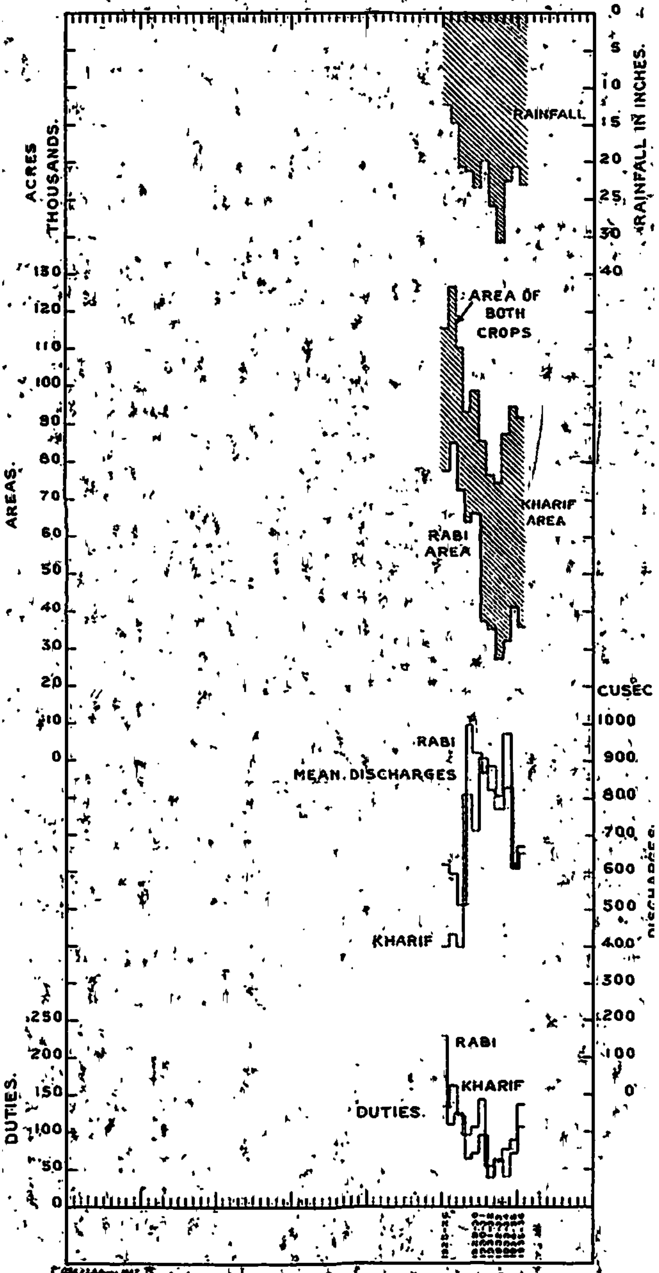
The general condition of the irrigated crops was satisfactory. There was however a drop in "gul" prices and the prices of agricultural produce was also low.

The following factories have been established on the Deccan Canals and the acreages for which water is guaranteed at present is noted against each :—

	Name of sugar factory.	Annual guarantee of water supply for areas of sugarcane.	Capacity in tons per day.
		Acres.	
1.	The Belapur Company, Harigaon, Pravara Left Bank Canal ..	2,750	600
2.	The Maharashtra Sugar Mills Limited near Belapur, Pravara Left Bank Canal	1,250	400
3.	Messrs. Marsland Price and Company Limited at Kalamb, Nira Left Bank Canal	1,400	300
4.	The Phaltan Sugar Works Limited near Tadavli, Nira Right Bank Canal ..	2,500	500
5.	The Saswad Mali Sugar Factory Limited near Akluj, Nira Right Bank Canal ..	1,200	300
6.	The Ravalgaon Sugar Farm Limited near Ravalgaon, Girna Canal	1,400	200
7.	Belwandi Sugar Farm Near Visapur—Visapur Canal	No guarantee in respect of area is given but ¾th of the water available in the Visapur tank is guaranteed annually.	200

No factory has yet been erected by the Brihan Maharashtra Sugar Syndicate Limited, Nira Right Bank Canal, but sugarcane has been planted by the Company for the purpose of seedling cane.

WORKING RECORD
FOR
NIRA RIGHT & LEFT BANK CANALS.
1925 – 1936.



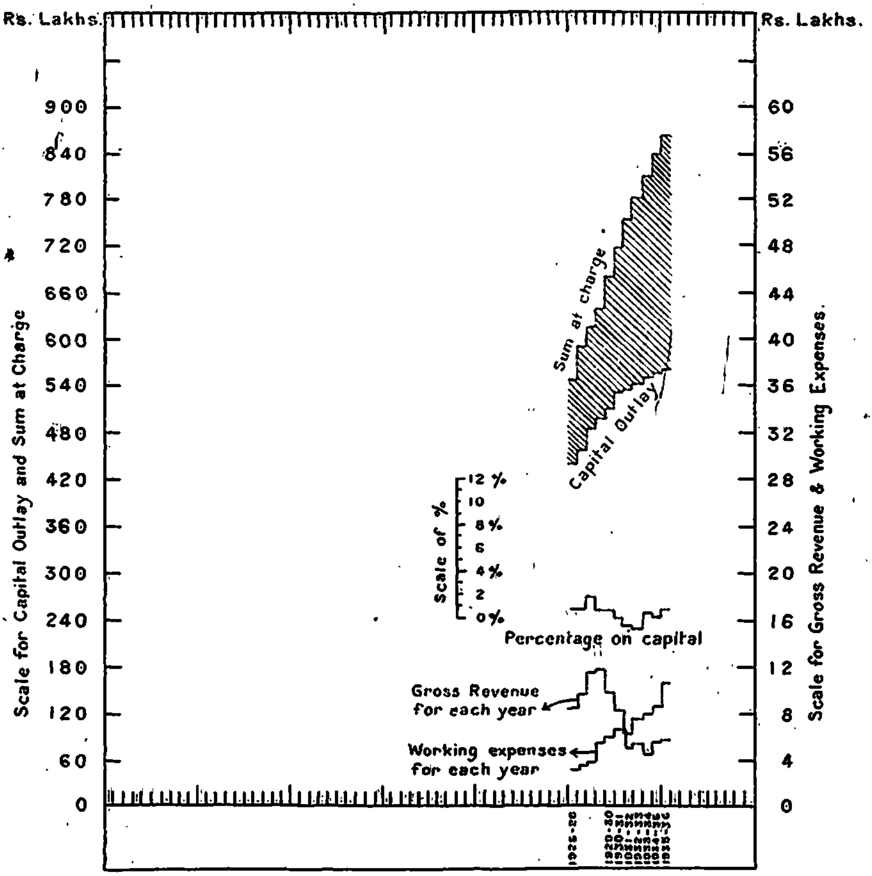
E. P. LITTLE.
EXECUTIVE ENGINEER,
NIRA R. B. CANAL DIVISION.

FINANCIAL RECORD

FOR

Nira Right & Left Bank Canals.

1925-1936



THE INTERCEPTS BETWEEN THE TWO RED LINES SHOW ARREARS OF INTEREST UNPAID UP TO END OF EACH YEAR, WHICH BEING ADDED TO THE CAPITAL, GIVE SUM AT CHARGE. THE INTERCEPTS BETWEEN THE BLACK & RED LINES SHOW THE NET INCOME EACH YEAR.

E. P. LITTLE
EXECUTIVE ENGINEER
NIRA R. B. CANAL DIVISION

(O) G. P. Z. O. Poona, 1937.

The areas of sugarcane planted by the sugar factories during the year were 12,107 acres.

Due to intensive cultivation of sugarcane by the sugar companies, lands are likely to be damaged rapidly by water logging and the question of providing for the adequate drainage of such lands is under consideration.

The total area irrigated in the Deccan Irrigation Circle during the year was 167,209 acres as compared with 155,276 acres during the previous year and the gross revenue amounted to Rs. 23·60 lakhs as compared with the figure of Rs. 20·43 lakhs for the previous year.

NIRA RIGHT BANK CANAL DIVISION.

Lloyd Dam at Bhatgar and Nira Right Bank Canal.

The Lloyd Dam and the first 15 miles of the Nira Right Bank Canal have been under the control of the Poona Irrigation Division since the 19th June 1934 for management to facilitate administrative convenience.

The Nira Right Bank Canal is the largest canal in the Deccan. The original estimate of the project framed in 1910 provided for :—

(1) The raising of the Dam at Bhatgar by 60 feet in order to increase its storage capacity from 5,300 million cubic feet to 24,000 million cubic feet ;

(2) The construction of a canal 109 miles long on the right bank of the Nira river having a capacity of 1,500 cusecs at head ; and

(3) The enlarging of the existing Nira Left Bank Canal in order to increase its discharge from 450 to 760 cusecs.

The total cost was estimated at about Rs. 258 lakhs and the area to be irrigated annually at 190,000 acres. The project was submitted to the Government of India in May 1911, sanctioned by the Secretary of State in June 1912 and the work was started in the same year. Before the work of raising the Bhatgar Dam was commenced, however, it was decided for technical reasons to build an entirely new dam. Owing to this change and to the unprecedented rise in the cost of labour and materials due to the Great War, a revised estimate amounting to Rs. 491 lakhs was framed in 1920 and submitted to the Government of India in September 1921. The revised project provided for :—

(1) The construction of a new dam at Bhatgar designed to increase the storage from 5,300 million cubic feet to 24,000 million cubic feet.

(2) The construction of a canal 106½ miles long on the right bank of the Nira river, and

(3) The enlargement of the Nira left bank canal, including the expenditure of Rs. 3¾ lakhs already incurred on widening the Nira left bank canal.

It was anticipated that 132,000 acres would be irrigated annually as a result of this scheme and that the gross revenue would amount to Rs. 15·22 lakhs and the net revenue to Rs. 11·92 lakhs yielding a return of 2·4 per cent. on the capital outlay. The revised project was sanctioned by the Secretary of State in June 1922.

The Lloyd Dam at Bhatgar, 190 feet high, 5,333 feet long including the waste weir (4,266 feet long excluding the waste weir) and 124 feet wide at the base, was completed in 1928 at a cost of Rs. 172 lakhs. It is one of the largest dams in the world and contains 21½ million cubic feet of masonry. The lake formed by the construction of the dam has a length of 17 miles at full supply level with a corresponding storage capacity of 24,000 million cubic feet. The catchment area is 128 square miles in extent with an annual rainfall varying from 250 inches in the Ghats to 40 inches at Bhatgar. In addition to the sluices required for releasing water for irrigation purposes there are 81 waste weir gates for the control and regulation of the flood level in the lake.

The Nira Right Bank Canal has its head works at Vir, 17 miles from the Lloyd Dam. The designed discharges of the canal at head and at tail are 1,500 and 414 cusecs, respectively, the corresponding full supply depths being 8·5 and 6·5 feet, respectively. The canal about 106½ miles in length commands lands situated in the Satara and Sholapur Districts and the Phaltan State. Water was first supplied from the canal for the irrigation of rabi crops in 1924-25. The works on the main canal are completed. There are 3 branches and 69 distributaries taking off from the canal, while the culturable area commanded by it is 448,000 acres. The water regulation and distribution works on the canal are constructed on modern lines and the latest types of Standing Wave Flume measuring devices are provided at distributary heads on the channels. The whole of the perennial area under the canal has been surveyed and the soil classification carried out before designing the channels, while the lands suitable for perennial and other crops have been classified by the Irrigation Research Division and shown on maps.

On the 1st April, the level of the water in Lake Whiting at Bhatgar was 112·50 feet (full supply level 143 feet) above the sill of the sluices, the corresponding contents being 13,337·99 million cubic feet. The lowest level of 86·80 feet was reached on the 30th June, the corresponding contents being 6,220·65 million cubic feet. The lake began to fill subsequently and received replenishment up to its full supply level of 143 feet on the 27th August. Full supply level was maintained till the 26th September, when the draw-off for irrigation purposes commenced. On the 31st March 1936, the water level was at 111·30 feet, the corresponding contents being 12,971·05 million cubic feet. The rainfall, gauged at Bhatgar during the year was 35·02 inches, while the rainfall in the canal tract averaged 25·81 inches.

The following table gives the area irrigated, revenue assessed, etc. during the year as compared with the corresponding averages of the past three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
30,893	27,274	2,80,361	1,89,550	3,14,614	1,96,672

Working expenses.		Realisations.		Rainfall.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
3,51,226	2,92,988	3,32,384	1,45,448	25·81	25·33

The increases in the area irrigated and revenue assessed were due to the general development of irrigation. The area under sugarcane was 5,683 acres as compared with 5,824 acres in the previous year. The areas of sugarcane blocks and two-season blocks were 3,510 acres and 11,431 acres as compared with 3,434 acres and 9,930 acres, respectively, in the previous year. The areas of garden and fruit blocks totalled 126 acres as compared with 108 acres of the previous year. The remissions sanctioned during the year amounted to Rs. 92.

The cost of the measuring establishment employed was pies 3 per acre—the same as for the previous year. The expenditure incurred on maintenance and repairs amounted to Rs. 1,29,137. The perennial section of the Nira Right Bank Canal extended up to mile 79.

MHASWAD TANK.

This irrigation tank is formed by an earthen dam built across the Man river, the dam being 9,000 feet long and 80 feet high at its highest point. The tank, which is situated on the eastern border of the Satara District, has a storage capacity of 2,602 million cubic feet and supplies water for the irrigation of lands situated in the Sholapur District. Owing to the precarious nature of the rainfall received in the catchment area the supply is not reliable. The tank is provided with a masonry over-flow waste weir. The project was commenced in 1876-77 and completed in 1888-89. There is only one canal taking off from the left flank of the dam, previously called Mhaswad Canal No. 1 and now termed Mhaswad Canal, Part I, The designed discharge of the canal is 180·7 cusecs, whereas the present actual discharge is about 110 cusecs with a full supply depth of 4 feet. The Nira Right Bank Canal cuts across the Mhaswad Canal at mile 15 and the old Mhaswad Canal has been remodelled to function as Branch III of the Nira Right Bank Canal passing a discharge of 300 cusecs. No water from the Nira Right Bank Canal is now available for Branch III of the Nira Right Bank Canal system and the irrigation on this branch is being carried out with water obtained from the Mhaswad Tank with effect from the rabi season of 1934-35.

On the 1st April, the level of water in the tank was 20 feet (the full supply depth being 24 feet) and the corresponding contents were 1948·37 million cubic feet. The tank began to receive replenishment with effect from the 8th June and reached its full supply level on the 28th August, the corresponding contents being 2,602 million cubic feet, which enabled the full demands of the rabi season to be met. On the 31st March, the level of water in the tank was 18·60 feet, the corresponding contents being 1741·40 million cubic feet. The average rainfall in the catchment of the tank (480 square miles) was 25·23 inches and the run-off amounted to 12,737·43 million cubic feet, while the average rainfall in the canal tract was 26·75 inches.

The following table shows the area irrigated, revenue assessed, etc. during the year as compared with the corresponding averages of the past three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
3,577	5,072	17,150	21,497	23,848	24,574

Working expenses.		Realisations.		Rainfall.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
21,528	17,423	27,083	31,712	26·75	22·30

The area cultivated with sugarcane was 62 acres compared with 24 acres in the previous year. The area under two-season blocks was 699 acres. The cost of the measuring establishment was 3 pies per acre compared with 6 pies for the previous year. The expenditure incurred on maintenance and repairs amounted to Rs. 7,977.

POONA IRRIGATION DIVISION.

NIRA LEFT BANK CANAL.

This canal forms part of the scheme known as the Nira Valley Development Project and irrigates lands situated on the left bank of the Nira river. It is one of the pioneer irrigation works in the Deccan and protects a tract in the Poona District, with a very precarious rainfall. The original scheme consisted of—

(*a*) A ghat-fed storage tank at Bhatgar (Lake Whiting) about 32 miles south of Poona on the Yelwandi river, impounding 5,300 million cubic feet of water;

(*b*) A pick-up-weir at Vir on the Nira river about 17 miles downstream from Bhatgar;

(*c*) A canal about 100 miles long irrigating about 80,000 acres annually; and

(*d*) The Shetphal Tank at the tail of the canal with an effective capacity of 592 million cubic feet for the purpose of storing a portion of the surplus monsoon discharge.

The original masonry dam at Bhatgar, 127 feet high, has since been replaced by the higher Lloyd Dam mentioned above. The original works were commenced in 1881 and the canal came into operation in 1885-86. The canal originally had a capacity of 456 cusecs but it has now been remodelled to carry a discharge of 720 cusecs. A maximum discharge of 715 cusecs was provided during the year under report. The canal, together with the tank, commands a gross area of 201,000 acres while the area commanded by the Shetphal Tank itself is 23,500 acres. The culturable area under the canal is 149,821 acres.

NIRA VALLEY DEVELOPMENT PROJECT.

This project was designed for the complete development of irrigation in the Nira Valley. It provided, *inter alia*, for the widening and remodelling of the Nira Left Bank Canal in order that the canal should irrigate an additional area of 19,000 acres of various types of crops and the construction of a new dam at Vir designed to supplement the storage of 24,000 million cubic feet impounded by the Lloyd Dam at Bhatgar. The construction of the Vir Dam, estimated to cost about a crore of rupees, which was abandoned on the assumption that by economical distribution of the water available, the storage at Bhatgar would be sufficient to meet all irrigation requirements of the Nira Valley, will however have to be reconsidered owing to the development of irrigation by the opening of sugar factories in the Valley. The remodelling of the Nira Left Bank Canal, which was started in the year 1925-26, has made considerable progress and the work is expected to be completed by the end of the year 1940-41. The expenditure incurred during the year amounted to Rs. 1,09,150.

The rainfall at Bhatgar was 35·02 inches as compared with 44·21 inches, the average rainfall during the past 34 years. The rainfall along the Nira Left Bank Canal, which was below the normal, was 22·72 inches. The supply of water was however sufficient to meet all demands made on it. The water in the Shetphal Tank reached its lowest depth of 8·25 feet on the 12th June, the corresponding contents being 28·58 million cubic feet. Replenishment from the canal commenced shortly after this date and the tank reached the full supply level of 37·50 feet on the 30th August, the corresponding contents being 572·53 million cubic feet.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the previous three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
60,605	55,012	6,56,478	5,90,269	6,61,289	5,97,235

Working expenses.		Realisations.		Rainfall.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
2,25,139	2,37,230	7,59,725	6,54,631	22·72	24·60

The area of sugarcane blocks was 16,400 acres on the Nira Left Bank Canal and that on the Shetphal Tank 1,792 acres compared with 14,583 and 1,568 acres, respectively, during the previous year, while the area under two-season blocks on the Nira Left Bank Canal was 17,216 acres and on the Shetphal Tank 636 acres compared with 17,235 and 650 acres, respectively. The cost incurred on the measuring establishment employed was 5 pies per acre—the same figure as for the previous year. Remissions amounting to Rs. 3,180 and refunds up to the extent of Rs. 45 were sanctioned during the year under report. The cost of maintenance and repairs amounted to Rs. 79,518. The perennial section of the Nira Left Bank Canal extended up to mile 90 and that of the Shetphal Tank up to outlet 22 of the Shetphal Channel.

MUTHA CANALS.

This system came into operation in 1874-75. The canals were constructed at a cost of about Rs. 65½ lakhs, including the cost of a large-ghat-fed storage reservoir (Lake Fife) on the Mutha river at Khadakwasla, about 12 miles from Poona. The dam is 107 feet high, spanning the valley of the Mutha. The system comprises two canals, the Mutha Right Bank and Mutha Left Bank Canals, 70 and 18 miles long, respectively. The maximum designed discharges of the two canals at their heads are 41·2 and 38·5 cusecs, respectively. Both the canals take off direct from the lake, which has a storage capacity of 3,955 million cubic feet, of which 508 million cubic feet are reserved for the Poona Water Supply system as a margin of safety in the event of replenishment being received late. The storage is partly utilised for drinking and domestic purposes in Poona and partly for irrigation. The supply available for irrigation being insufficient the perennial limit of the Mutha Right Bank Canal is restricted to the reach between the head of the canal and mile No. 23⅝ i.e., up to and including Distributary No. 9. Even so the supply available in the lake is totally inadequate to meet the increasing demands on it and a project has been prepared for increasing the storage and for the remodelling and extension of the Right Bank Canal. The Matoba tank is a tail tank receiving the surplus supply of the canal during the monsoon months.

On 1st April, the level of water in Lake Fife was 21·20 feet above the sill of the canal sluices, the corresponding contents being 1,804·40 million cubic feet, as compared with 18·95 feet and 1,551 million cubic feet in the previous year. The lowest level reached was 10 feet above sill level on the 18th of June, when replenishment commenced. The lake overflowed on the 8th July. The water in the lake remained at the full supply level of 34 feet (contents 3,643 million cubic feet) up to the 3rd November and the draw off commenced on the next day. The run-off from the catchment of the lake (196 square miles) amounted to 32,270·15 million cubic feet. The level of water on the 31st March 1936 was 19·50 feet, the corresponding contents being 1,612·50 million cubic feet as compared with 21·30 feet and 1,816 million cubic feet, respectively, in the previous year. The rainfall at Khadakwasla was 28·65 inches as compared with 32·15 inches in the previous year. The level of water in the Matoba Tank on the 1st April was 14·88 feet, the corresponding contents being 37·52 million cubic feet. The tank dried up on the 3rd May. Replenishment from the Mutha Right Bank Canal commenced from the 10th July. The full supply level of the tank 29 (feet) was reached on the 12th September, the corresponding contents being 220·54 million cubic feet. The level of water on the 31st March 1936 was 16·90 feet, the corresponding contents being 52 million cubic feet.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the previous three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
11,565	11,129	1,79,784	1,64,081	3,77,447	3,66,785

Working expenses.		Realisations.		Rainfall.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
98,048	1,11,444	4,13,635	4,13,046	23·14	23·13

The area cultivated under sugarcane (full term) was 2,505 acres as compared with 2,216 acres in the previous year. The area under two-season blocks on the Mutha Canals was 1,044 acres and that on Matoba Tank 1,321 acres as compared with 783 and 1,107 acres, respectively, in the previous year. The quantities of water supplied to the Poona Cantonment and Poona City Municipality during the year was 1,162 and 3,022 million gallons, respectively, as compared with 1,069 and 2,882 million gallons, respectively, in the previous year. The revenue assessed amounted to Rs. 46,494 and Rs. 1,42,477, respectively, compared with Rs. 42,828 and Rs. 1,33,860, respectively, during the previous year. The cost incurred on the measuring establishment employed was equivalent to a figure of 9 pies per acre—the same as in the previous year. The expenditure incurred on maintenance and repairs amounted to Rs. 35,842. An expenditure of Rs. 3,050 was incurred on the work of remodelling the first 11 miles of the Mutha Right Bank Canal for additional storage for the Poona Water Works, which was completed during the year. The remissions sanctioned during the year amounted to Rs. 60.

KASURDI TANK.

This tank, which remained empty from the 14th February 1935, received replenishment twice in the monsoon, but the amount on both occasions was very small. The first replenishment was received on the 20th August and the nala discharge continued until the 28th September. Further replenishment was received on the 5th and the 24th October and the tank dried up on the 30th October. The tank being heavily silted irrigated a very small area. The leasing out of the tank bed for cultivation is the main source of revenue and fetched Rs. 1,033 during the year under report.

SHIRSUPHAL TANK.

On the 1st April, the level of water in the tank was 11·30 feet, the corresponding contents being 9·82 million cubic feet. The tank dried up on the 11th April. Replenishment was received on the 8th June. The highest level reached was 27·80 feet on the 14th November, the corresponding contents being 252·92 million cubic feet. The level of water on the 31st March 1936 was 24·10 feet equivalent to a storage of 165·02 million cubic feet. The tank did not fill to its full supply level but the supply received was timely and satisfactory.

BHADALWADI TANK.

On the 1st April, the level of water in the tank was 31·15 feet, the corresponding contents being 138·29 million cubic feet. The lowest level of 28·90 feet was recorded on the 7th June, the corresponding contents being 111·17 million cubic feet. The full supply level of 35·70 feet was reached on the 16th June, the corresponding contents being 190·73 million cubic feet. On the 31st March 1936, the level in the tank was 31·90 feet, the corresponding contents being 147·90 million cubic feet.

The following table gives the figures of area irrigated, revenue assessed, etc. during the year as compared with the averages of the past three years :—

Name of tank.	Area irrigated.		Water rates.		Gross assessed. revenue.	
	1935-36	Average.	1935-36.	Average.	1935-36.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Kasurdi	29	48	69	229	1,276	941
Shirsuphal	888	1,052	4,836	6,086	6,668	6,231
Bhadalwadi	723	727	3,667	4,281	3,815	4,458

Name of tank.	Working expenses.		Realisations.		Rainfall.	
	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Kasurdi	1,086	1,095	1,286	907	17·45	15·13
Shirsuphal	2,956	3,296	10,013	6,255	20·83	16·96
Bhadalwadi	3,916	3,370	7,454	6,267	32·50	18·39

NASIK IRRIGATION DIVISION.

GODAVARI CANALS.

This is one of the major irrigation works undertaken in the Deccan for the protection of areas liable to famine. It was started in 1907 and completed in 1915-16 at a cost of about 1 crore of rupees. The system comprises ;—

(1) A storage reservoir (Lake Beale) on the Darna River, a tributary of the Godavari situated about 20 miles from Nasik ;

(2) A pick-up-weir at Nandur-Madhmeshwar on the Godavari, 47 miles below the Darna Dam, which impounds the water released from the storage reservoir ; and

(3) Two canals, the Right Bank Canal, 69 miles long, which serves the northern tracts of the Ahmednagar District and the Left Bank Canal, 48 miles long, which irrigates lands north of the Godavari in the Nasik and Ahmednagar Districts.

The length of the Darna Dam (inclusive of its waste weir) exceeds a mile and the dam has a maximum height of 92 feet above its lowest foundation level. The lake has a storage capacity of 7,763 million cubic feet and the cost of the dam was Rs. 34·27 lakhs. The catchment area is 156 square miles. The weir at Nandur-Madhmeshwar is a work of considerable magnitude, its length being 3,618 feet inclusive of the Right and Left Bank Canal regulators. It has a maximum height of 34 feet above the level of the river bed. Scouring sluices have been constructed close to the head regulators of the two canals with the object of keeping the approach channels to the latter clear of silt. The total area under the command of the canals is 232,390 acres. The two canals (Right Bank and Left Bank) are designed to discharge 384 and 228 cusecs at their heads respectively, with full supply depths of 7 feet and 6 feet, respectively.

On the 1st April, the level of water in the lake was 51·5 feet, the corresponding contents being 3,960 million cubic feet. The lowest level of 29·5 feet was reached on the 17th June, the contents being 1,147 million cubic feet, when the lake began to receive replenishment, until it overflowed on the 20th July. The draw-off for irrigation purposes commenced on the 17th November with a water level of 65 feet, the corresponding contents being 7,763 million cubic feet. On the 31st March 1936, the level of water was 48 feet, the corresponding contents being 3,266 million cubic feet. The perennial limit of the Right Bank Canal is up to mile 60 and that of the Left Bank Canal up to 42 miles. The average rainfall in the catchment area of the lake was 76·86 inches.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the corresponding averages of the past three years :—

Name of work.	Area irrigated.		Water rates assessed.		Gross assessed revenue.	
	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Lake Beale	501	486	1,789	1,690	2,83,853	2,64,379
Godavari Right Bank Canal	9,312	8,781	1,35,627	1,26,947		
Godavari Left Bank Canal .	7,435	7,422	1,18,922	1,12,740		

Name of work.	Working expenses.		Realisations.		Rainfall.	
	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Lake Beale	3,77,051	3,11,448	2,55,625	3,62,124	....	....
Godavari Right Bank Canal					20·74	24·33
Godavari Left Bank Canal .					17·63	25·37

The increases in the area irrigated and the assessed revenue were due to increase in the sugar cane area. The area of sugarcane blocks was 9,515 acres as compared with 7,888 acres in the previous year. The cost of the measuring establishment employed was 7 pies per acre—the same figure as was obtained last year. The remissions sanctioned during the year amounted to Rs. 29,208. The cost incurred on maintenance and repairs amounted to Rs. 1,61,061.

CHANKAPUR TANK—GIRNA CANAL.

This is a comparatively small irrigation system situated in the Nasik District having its storage reservoir at Chankapur, fed from a catchment of 100 square miles in extent, and its pick-up weir at Tengoda, situated further downstream on the Girna river, from which weir the Girna canal (19 miles in length) takes off. The tank is situated on the Girna river, a tributary of the Tapti, and has been formed by the construction of a masonry dam 140 feet high, which impounds 1,500 million cubic feet of water. The dam and the canal (up to mile 13) were completed in 1909-10 and the canal has been in operation since then. The extension of this canal, designed to carry about 40 cusecs, up to mile 19 was completed in 1920-21. The designed discharge of the canal at its head is 90 cusecs and at its tail 15 cusecs, the corresponding full supply depth being 4½ feet and 2 feet, respectively. The total area under the command of the canal is 29,182 acres and the irrigable area is 8,500 acres.

On the 1st April, the level of water in the tank was 78·65 feet, the corresponding contents being 889 million cubic feet. The lowest level of 63·20 feet was reached on the 16th June (contents 471 million cubic feet) when the lake began to receive replenishment, until the level rose to 91·8 feet on the 2nd November (the full supply depth being 92 feet), the corresponding contents being 1,535 million cubic feet. The first draw off for irrigation purposes commenced on the 26th October with the level of water at 91 feet, the corresponding contents being 1,484 million cubic feet. On the 31st March 1936, the level of water was 77·65 feet, the contents then being 852 million cubic feet. The run-off from the catchment of the tank (100 square miles) was 4,948·3 million cubic feet with an average rainfall of 18·7 inches.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the past three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
8,870	6,451	91,388	62,991	94,152	63,794

Working expenses.		Realisations.		Rainfall.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
46,828	52,286	88,927	70,131	18·70	23·52

The increases in the area irrigated and revenue were due to increase in the sugar cane area on account of the establishment of a sugar factory. The cane area was 1,694 acres as compared with 1,152 acres in the previous year. The cost of the measuring establishment was equivalent to 1 anna

6 pies per acre as compared with the same figure obtained during the previous year. The remissions and refunds sanctioned during the year were Rs. 445 and 1,451, respectively. The expenditure incurred on maintenance and repairs amounted to Rs. 14,508.

KADWA RIVER WORKS.

These works, which came into operation in 1868-69, consist of three small canals, viz., the Palkhed, the Ojhar Tambat and the Wadali, taking off from weirs constructed across the Kadwa river and its tributary the Banganga. The system comprises 38 miles of canals and distributaries. The storage reservoir is at Waghad (a ghat-fed storage) situated on the Kolwan river in the Nasik District. The catchment of the tank is 29 square miles in extent. The tank is remarkable for the size of its earthen dam, which has a maximum height of 96 feet. The designed discharges of the Palkhed canal at its head and at its tail are 90 cusecs and 15 cusecs, respectively, the corresponding depths at full supply being 4½ feet and 2 feet. The designed discharges of the Ojhar Tambat canal at its head and at its tail are 33 cusecs and 5 cusecs, respectively, the depths at full supply being 3 feet and 1 foot respectively. The designed discharges of the Wadali canal at its head and at its tail are 19 cusecs and 5 cusecs, respectively, the depths at full supply being 2 feet and 1 foot, respectively.

On the 1st April, the level of water in the tank was 37·75 feet above the sill, the corresponding contents being 250 million cubic feet. On the 13th June, the level of water fell to 25·20 feet, when the lake began to receive replenishment and the level of water rose to 48 feet, the corresponding contents being 521 million cubic feet. The level was maintained till the first draw-off for irrigation purposes commenced on the 22nd November. On the 31st March 1936, the level of water was 37·90 feet, the corresponding contents being 253 million cubic feet.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the past three years :—

Name of Canal.	Area irrigated.		Water rates assessed.		Gross revenue assessed.	
	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Palkhed Canal ..	2,298	2,082	18,423	16,666	42,512	37,255
Ojhar Tambat Canal ..	1,181	1,026	11,081	9,046		
Wadali Canal ..	893	969	9,392	8,655		

Name of Canal.	Working expenses.		Realisations.		Rainfall.	
	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Palkhed Canal ..	23,967	32,029	20,998	28,441	18·85	31·44
Ojhar Tambat Canal ..					21·82	32·56
Wadali Canal ..					19·25	25·38

Controlling devices have been fixed on the outlets of the canals for the proper control over the distribution of water and efforts were made to regularise the management of irrigation on this system, which made it possible to allow water to a larger area. The increase in revenue in respect of the Palkhed Canal was due to increase in the sugar cane area during the year. The expenditure on maintenance and repairs amounted to Rs. 10,252.

The cost incurred on the measuring establishment employed was 6 pies per acre—the same figure as for the previous year. Remissions sanctioned during the year amounted to Rs. 12,075.

PARSUL TANK.

This tank is formed by an earthen dam across the Parsul river in the Malegaon taluka of the Nasik District. It depends solely on local rains for its supply. The storage capacity of the tank is 119 million cubic feet with a depth of 35 feet. There is no canal and the irrigation is done by small channels taking off the Parsul river itself downstream of the tank.

The tank was dry from the 1st April to the 16th June, when the replenishment commenced. The level of water reached 20·50 feet on the 14th July, the corresponding contents being 45·00 million cubic feet and this level continued till the 16th July, when the draw off for irrigation purposes commenced. The tank was dry again on the 26th February 1936.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the past three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
701	603	3,220	3,477	3,424	3,775

Working expenses.		Realisations.		Rainfall.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
1,652	1,617	2,479	4,068	18·70	23·22

The cost of the measuring establishment employed was equivalent to 1 anna 5 pies per acre—the same figure as for the previous year. An expenditure of Rs. 697 was incurred on maintenance and repairs during the year. The remissions sanctioned amounted to Rs. 152.

AHMEDNAGAR DIVISION.

PRAVARA RIVER WORKS.

This canal system, which was constructed at a cost of Rs. 1½ crores, comprises :—

(1) The Wilson Dam at Bhandardara on the Pravara river. This dam which impounds the water of the Lake Arthur Hill, is one of the highest dams in the world having a height of 282 feet. It is 1,600 feet in length and the lake formed by the dam has a storage capacity of some 12,092 million cubic feet;

(2) A pick-up-weir, 890 feet long, situated at Ojhar, 53 miles downstream from Lake Arthur Hill and about 8 miles east of Sangamner; and

(3) Two canals, the Pravara Right Bank Canal, 33 miles long, and the Pravara Left Bank Canal, 48 miles long, which take off at the weir at Ojhar.

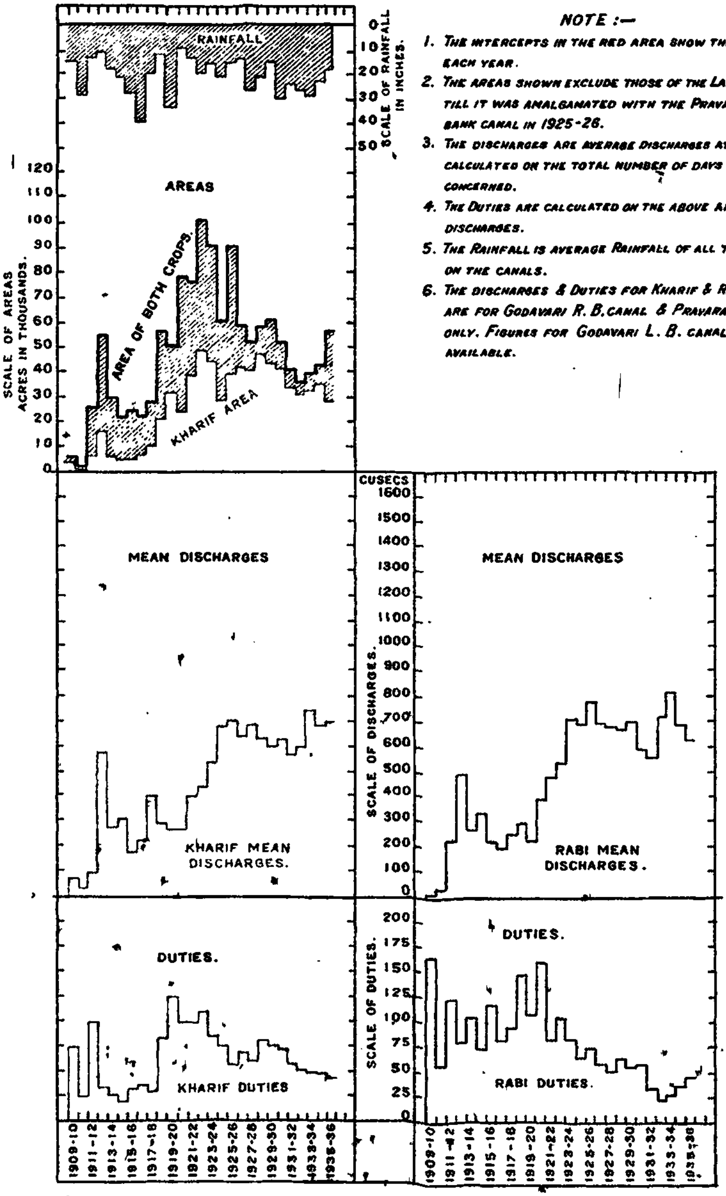
These canals irrigate lands in the Ahmednagar District and command an area of 228,720 acres. The designed discharges of the two canals (Pravara Right and Left Bank Canals) at head are 152 and 530 cusecs, respectively, the corresponding full supply depths being 5feet and 8 feet. The work of remodelling the first few miles of the Pravara Left Bank Canal and the Northern branch has been started in order to meet the increased demand for water from the sugar factories established on the Left Bank Canal. The work of remodelling Distributary Nos. 6 and 7 of the canal was in progress. With the remodelling of the canal and the rotational running now practised it is expected that the trouble caused by weeds will not recur. The Ojhar weir has been raised by two feet for additional storage. The construction of the Wilson Dam, which impounds the water of Lake Arthur Hill, was commenced in 1911 and completed in 1926. The catchment area of the lake is 47 square miles ; it is situated in the ghats and has an assured run-off. The dam is designed to impound a maximum depth of water of 270 feet and is constructed across a gorge in the valley of the Pravara river. At present water is impounded to a depth of 260 feet, giving a storage of 10,086 million cubic feet and this could be increased to 12,092 million cubic feet with a corresponding depth of 270 feet by the erection of automatic gates on the waste weir or by the construction of siphon spillways and the raising of the waste weir. The existing storage is not sufficient for the full development of the canals and the question of increasing the storage is being investigated.

On the 1st April, the level of water in the lake was 226·5 feet the corresponding contents being 5,412 million cubic feet. The lowest level of 189·4 feet was reached on the 14th June, the contents being 2,563 million cubic feet. Replenishment commenced with effect from the 15th June and the full supply level of 260 feet was reached on the 27th June, the contents being 10,080 million cubic feet. The maximum flood occurred on the 30th July, when the level was 262·4 feet, which lasted for about 84 hours. The full supply level was maintained till the 9th October 1935 and the draw off for irrigation purposes commenced on this date. The level of water gradually fell to 238 feet on the 15th February, the contents being 6,850 million cubic feet. The level of water on the 31st March 1936 was 226 feet, the corresponding contents being 5,359 million cubic feet. The yield from the catchment (47 square miles) of the lake was 34,412·08 million cubic feet while the average rainfall of the several raingauge stations was 153·74 inches. The monsoon set in time and was sufficient and well distributed over the irrigated tract as a result of which there was no heavy demand for water for monsoon irrigation.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the past three years :—

Name of work.	Area irrigated.		Water rates assessed.		Gross assessed revenue.	
	1935-36.	Average.	1935-36..	Average.	1935-36.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Pravara Right Bank Canal..	6,178	5,315	91,364	72,050	5,41,062	3,97,764
Pravara Left Bank Canal ..	20,875	18,119	4,37,308	3,17,744		

AHMEDNAGAR DIVISION
GODAVARI & PRAVARA CANALS
COMBINED WORKING RECORD.
FOR THE YEARS 1909 – 36.



NOTE :—

1. *THE INTERCEPTS IN THE RED AREA SHOW THE RABI AREAS EACH YEAR.*
2. *THE AREAS SHOWN EXCLUDE THOSE OF THE LAKH CHANNEL TILL IT WAS AMALGAMATED WITH THE PRAVARA LEFT BANK CANAL IN 1925-26.*
3. *THE DISCHARGES ARE AVERAGE DISCHARGES AT HEAD CALCULATED ON THE TOTAL NUMBER OF DAYS OF THE SEASON CONCERNED.*
4. *THE DUTIES ARE CALCULATED ON THE ABOVE AREAS AND DISCHARGES.*
5. *THE RAINFALL IS AVERAGE RAINFALL OF ALL THE STATIONS ON THE CANALS.*
6. *THE DISCHARGES & DUTIES FOR KHARIF & RABI 1912-13 ARE FOR GODAVARI R. B. CANAL & PRAVARA CANALS ONLY. FIGURES FOR GODAVARI L. B. CANAL ARE NOT AVAILABLE.*

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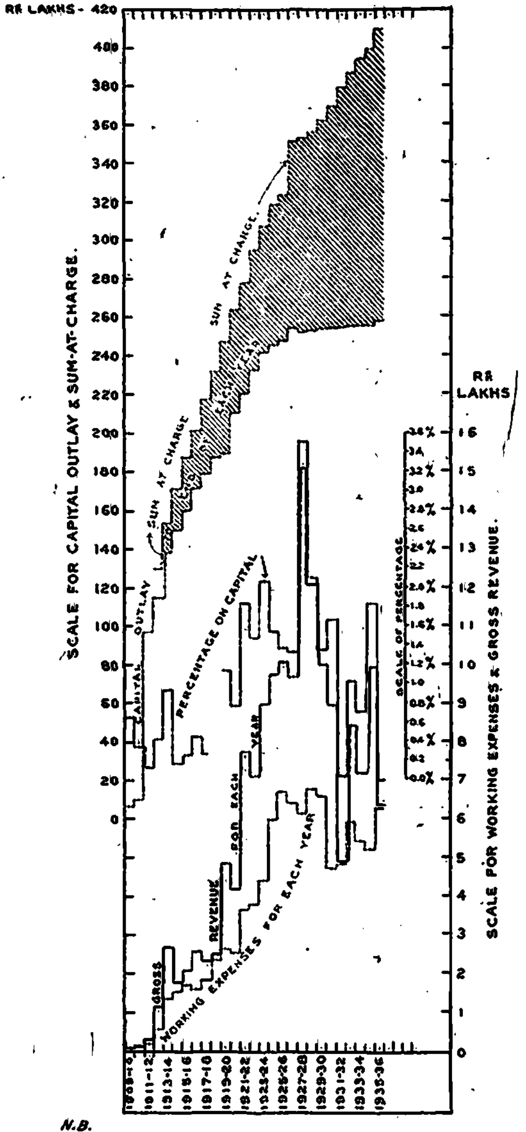
N. B. GADRE
Executive Engineer,
Ahmednagar Division.

AHMEDNAGAR DIVISION
GODAVARI & PRAVARA CANALS
COMBINED FINANCIAL RECORD.
FOR THE YEARS 1909-36



N.B.

THE INTERCEPTS BETWEEN THE TWO RED LINES SHOW ARREARS OF INTEREST UNPAID UPTO END OF EACH YEAR, WHICH BEING ADDED TO THE CAPITAL, GIVE SUM AT CHARGE.

THE INTERCEPTS BETWEEN THE GREEN & BLACK LINES SHOW THE NET INCOME EACH YEAR.

NAME OF CANAL	CONSTRUCTION COMMENCED IN.	CANAL WAS OPENED IN.
GODAVARI CANALS.	1907	1911-12
PRAVARA CANALS.	1909	1909-10

N.B. GADRE.
EXECUTIVE ENGINEER.
AHMEDNAGAR DIVISION

Name of work.	Working expenses.		Realisations.		Rainfall.	
	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Pravara Right Bank Canal..	2,56,590	2,29,829	3,80,987	4,02,126	19·24	27·86
Pravara Left Bank Canal ..					20·49	25·12

The increases in the area irrigated and the irrigation assessment were due to more irrigation of sugarcane by the sugar companies and the local irrigators. The total area of sugarcane blocks was 8,653 acres while the area under two-seasonal blocks was 665 acres as compared with 8,034 acres and 914 acres respectively in the previous year. The remissions sanctioned during the year amounted to Rs. 507. The cost of the measuring establishment was equivalent to 5 pies per acre as compared with the figure of 6 pies of the previous year. The expenditure incurred on maintenance and repairs to the Wilson Dam and the two canals amounted to Rs. 84,034.

BHATODI TANK.

This is a small tank situated on the Mehekri river about 12 miles from Ahmednagar. It depends entirely on local rains for its supply. Due to silting, the storage capacity of the tank has been reduced from 154 million cubic feet to about 40 million cubic feet. On the 1st April, the level of water in the tank was 19·40 feet, the corresponding contents being 17·71 million cubic feet. The first replenishment was received on the 13th June, which raised the level of water to 24·50 feet. This was the highest level reached and the waste weir overflowed to a depth of 2 feet. The lowest level in the tank was 14·50 feet on the 8th June 1935.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the past three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
685	621	3,608	3,091	6,607	5,318

Working expenses.		Realisations.		Rainfall.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
2,760	3,826	6,972	5,829	25·45	27·82

The increases in the area irrigated and the assessment were due to more demand for irrigation. The area of two-seasonal blocks was 443 acres. The remissions sanctioned during the year amounted to Rs. 48. The expenditure incurred on maintenance and repairs during the year amounted to Rs. 1,020.

CENTRAL CIRCLE

SATARA DIVISION.

The area irrigated, the gross assessed revenue and the working expenses of the 6 works mentioned below as compared with the averages of the preceding three years, are given in the following statement :—

Name of work.	Area irrigated.		Gross assessed revenue.		Working expenses.	
	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
(1) Krishna Canal ..	4,434	4,435	67,337	74,494	19,575	22,945
(2) Rewari Canal ..	410	570	2,731	3,462	3,269	4,133
(3) Upper Man River Works.	875	797	5,175	3,993	5,522	6,926
(4) Yerla River Irrigation Works.	1,974	2,670	12,899	16,243	8,704	14,099
(5) Chikhli Canal ..	407	243	3.643	2,515	1,265	1,534
(6) Maini Tank ..	1,816	1,379	9,173	6,447	4,199	4,899

KRISHNA CANAL.

The total rainfall gauged at Retre Budruk, which is situated in the centre of the canal tract, was 23·94 inches, as compared with the average of 35·27 inches for the past three years. Water could not be made available for sugarcane beyond mile 23-3 of the canal, as its discharging capacity has been considerably reduced owing to the accumulation of silt.

REWARI CANAL.

The rainfall gauged at Rewari, which is situated one mile below the baŋdhara, was 22·84 inches, as compared with 30·30 inches, the average of the preceding three years. There was less demand for canal water, as the rainfall was timely and sufficient during the rabi season.

UPPER MAN RIVER WORKS.

(*Pingli Tank.*)

On the 1st April, the level of the tank was at R. L. 2,365·72, equivalent to a storage of 84·74 million cubic feet. The supply was utilised for hot weather crops. The water level fell on the 10th June to R. L. 2360·12. The first replenishment was received on the 12th June, when the water level rose to R. L. 2,362·70, which was equivalent to a storage of 70·53 million cubic feet. Two more substantial replenishments were received during the monsoon and the tank was full on the 28th August, when the level stood at R. L. 2,371·70 equivalent to a storage of 163·87 million cubic feet, resulting in the water following over the waste weir. The rainfall gauged at Gondawla, which is situated 3 miles below the tank, was 24·03 inches compared with 23·50 inches, the average of the preceding three years.

YERLA RIVER IRRIGATION WORKS.

(*Nehr Tank.*)

On the 1st April, the R. L. in the tank was 2662·25, equivalent to a storage of 306·33 million cubic feet. The level fell gradually till the 8th June, when the R. L. stood at 2658·65, equivalent to a storage of 224·04 million cubic feet. The first replenishment was received on the 9th June, which raised the water level to R. L. 2658·75. On the 13th June, another replenishment was received, which was followed by a subsequent replenishment in the same month. The highest level was reached during the year on the 29th August, when the R. L. was 2666·50 and water began to flow over the waste weir. The rainfall gauged at Nehr was 25·97 inches as compared with 36·78 inches, the average of the preceding three years.

CHIKHLI CANAL.

On the 1st April, the level of the water in the river was 2·30 feet. The first flood, which occurred on the 9th June, lasted for 48 hours, when the level rose to 3·10 feet. The highest flood recorded during the year occurred on the 25th October, when it overflowed the weir. The rainfall gauged at Chikhli was 15·85 inches compared with 31·29 inches, the average of the preceding three years.

MAINI TANK.

On the 1st April, the water level in the tank was at R. L. 2300·02 with a storage of 16·74 million cubic feet. The first replenishment was received on the 11th June and the second on the 14th June, when the level of the water rose to R. L. 2304·72 and the waste weir began to overflow, The highest level reached during the year which occurred on the 26th October was R. L. 2305·97. The rainfall gauged at Maini was 28·66 inches as compared with 24·86 inches, the average of the preceding three years.

SHOLAPUR DIVISION.

The area irrigated, the gross assessed revenue and the working expenses of the tanks in the Sholapur Division, as compared with the corresponding averages of the preceding three years, are given in the following statement :—

Name of work.	Area irrigated.		Gross assessed revenue.		Working expenses.	
	1935–36.	Average.	1935–36.	Average.	1935–36.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Ekruk Tank	3,116	2,933	1,34,351	1,28,987	19,350	30,780
Koregaon Tank ..	458	522	2,310	2,467	1,739	2,070
Ashti Tank	2,222	2,834	12,454	15,055	89,603	25,543
Pathri Tank	447	765	11,395	12,628	3,237	3,996

EKRUK TANK.

The Ekruk Tank, situated near Sholapur, which came into operation in the year 1872–73, is an artificial reservoir formed by the construction of a large earthen embankment 7,000 feet long and having a maximum height of 76 feet. It supplies water not only for irrigational purposes but also to the town of Sholapur, the mills in Sholapur and the Great Indian Peninsula Railway for non-irrigational purposes. Under unfavourable conditions of replenishment, which occur periodically, the supply available from the tank is not sufficient to meet all the demands which arise, and the question of providing a supplementary storage is under consideration.

On the April 1st, the level of the water in the tank was 36·66 feet above the sill of the outlet. The storage available on the 31st May was found sufficient to admit of cultivation of 1,000 acres of monsoon crops in addition to 300 acres of cane. There was good rain in the catchment and the waste weir began to overflow on the 29th August. Water applications for 2,000 acres were invited for an additional Rabi area but the demand was poor owing to timely rains. The mean rainfall gauged at the five stations in the catchment area of the tank was 25·13 inches as compared with 23·65 inches, the average of the preceding three years, and the total replenishment received amounted to 1985·32 million cubic feet.

KOREGAON TANK.

On the 1st April, the level of the water in the tank was R. L. 88·44, i.e., 8·44 feet over the sill of the outlet. The level gradually fell to 83·53, corresponding to a storage of 9·83 million cubic feet. The highest level reached during the year which occurred on the 17th September was R. L. 97·90, when the waste weir began to overflow. Though the supply was sufficient, the demand was not keen. The rainfall recorded was 31·34 inches as compared with 27·13 inches, the average of the preceding three years.

ASHTI TANK.

On the 1st April, the level of the water in the tank was at 224·16, i.e., 14·39 feet above the sill of the outlet and this level gradually fell by the 11th June to R. L. 221·99 corresponding to a storage of 481·26 million cubic feet. The highest level was reached during the year on the 1st September, when the level was at 233·47, i.e., 0·97 above the crest of the waste weir. The waste weir overflowed up to the 9th September. In the middle of September a critical situation arose as a result of a section of the dam (between chainages 7,000 to 8,000 slipping outwards. The tank level had to be lowered by running both the left and right bank canals to waste until the slipping was arrested by the provision of a wide berm at the toe. With the rains of October, there was sufficient water in the tank to meet the requirements of the Rabi season but the demand was poor. The mean rainfall gauged at the two stations situated in the catchment was 25·87 inches as compared with the average of 27·19 inches for the preceding three years.

PATHRI TANK.

The tank supplies water to the town of Barsi and the mill industries, as well as for irrigational purposes. On the 1st April, the level of the water in the tank was at R. L. 237·64, i.e., 28·34 feet above the sill of the outlet. This gradually fell to 234·13 equivalent to a storage of 219·50 million cubic feet. The highest level reached during the year was 242·90 on the 2nd September, the contents at F. S. L., which is at R. L. 241·86, being 408·89 million cubic feet. The waste weir overflowed from the 2nd to the 7th and from the 12th to the 23rd September and again from the 2nd to the 9th October. The supply was thus sufficient for irrigation but there was not much demand. The mean rainfall gauged at the two stations situated in the catchment area was 32·25 inches as compared with 28·49 inches, the average of the preceding three years.

KHANDESH DIVISION.

JAMDA CANALS.

These canals receive their supply from the Girna river and the supply is supplemented from time to time by water obtained from the Chankapur Tank in the Nasik Irrigation Division. During the year under report, no water could be obtained from the Chankapur Tank. The rainfall during the year was 32·39 inches, as compared with 27·61 inches, the average of the preceding three years. The subjoined table shows the area irrigated, the gross assessed revenue and the working expenses as compared with the corresponding averages of the preceding three years :—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
1,244	2,262	12,755	13,955	19,733	14,502

HARTALA TANK.

The tank derives its supply solely from local rains and this supply is precarious. On the 1st April, the storage of the tank amounted to 89·53 million cubic feet and this gradually diminished to 57·45 million cubic feet. The first replenishment was received on the 1st July, which raised the contents to 62·60 million cubic feet. The maximum storage of 129·83 million cubic feet was reached on the 5th October. On 31st March 1936, the storage was 89·99 million cubic feet. The rainfall gauged at the tank was 33·3 inches as compared with 32·48 inches, the average of the preceding three years.

The subjoined table shows the area irrigated; the gross assessed revenue and the working expenses as compared with the corresponding averages of the preceding three years :—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
21	72	392	760	959	917

MHASWA TANK.

The tank derives its supply from local rains. On the 1st April, the storage of the tank amounted to 103·79 million cubic feet, which gradually diminished to 69·10 million cubic feet. The first replenishment was received on the 14th June, when the contents increased to 71·28 million cubic feet. The maximum storage of 149·58 million cubic feet was obtained on the 5th October; on the 31st March, the storage was 22·73 million cubic feet. The rainfall gauged at the tank was 17·50 inches as compared with 29·88 inches, the average of the preceding three years.

The area irrigated, the gross assessed revenue and the working expenses, as compared with the corresponding averages of the preceding three years are given below :—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
6	247	609	1,533	1,323	1,758

SHAHADA CHANNEL.

The channel is fed by the Gomai river which has a perennial flow. The rainfall gauged at Shahada was 18·45 inches as compared with 29·16 inches, the average of the preceding three years.

The area irrigated, the gross assessed revenue and the working expenses as compared with the corresponding averages of the preceding three years are given below :—

Area irrigated.				Gross assessed revenue.		Working expenses.	
Patasthal.		Jirayat.					
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
1,005	996	654	321	11,653	8,479	5,299	7,452

LOWER PANJHRA RIVER WORKS.

These works comprise 8 bandharas and 9 channels situated between Dhulia and Betawad on the Panjhra river, and the Mukti Tank, which is situated about 4 miles to the South West of Dhulia. The channels obtain their supply from the river but when that supply is insufficient, it is supplemented by water obtained from the Mukti Tank.

On the 1st April, the contents of the tank were 108·99 million cubic feet, which gradually diminished to 48·72 million cubic feet. The first replenishment was received on the 16th June, which raised the contents to 96·53 million cubic feet. The maximum storage of 320·03 million cubic feet was reached on the 31st August. The year closed with a storage of 241·72 million cubic feet. The rainfall gauged within the catchment at Dayana and Sadgaon during the year was 19·10 inches as compared with 18·70 inches the average of the preceding three years.

The subjoined table shows the area irrigated, the gross assessed revenue and the working expenses as compared with the corresponding averages of the preceding three years :—

Area irrigated.				Gross assessed revenue.		Working expenses.	
Patasthal.		Jirayat.					
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
1,268	1,267	982	1,221	24,774	26,048	3,969	4,533

SOUTHERN CIRCLE.

BELGAUM DIVISION.

GADIKERI TANK.

The lands under the command of this tank are all assessed at consolidated rates. The area irrigated and the irrigation share of the land revenue assessed were 418 acres and Rs. 2,344, respectively. The working expenses amounted to Rs. 1,654.

GOKAK CANAL.

This canal system is the most important irrigation scheme in the Southern Circle and consists of a reservoir formed by a masonry weir across the Ghataprabha river at Dhupdal in the Belgaum District, together with 16 miles of main and branch canals and 36 miles of distributaries. The canal commands an area of 18,668 acres, the area irrigable being 17,627 acres. Although the Dhupdal storage is mainly intended for irrigating lands under the canal, a stipulated quantity of water is issued to the Gokak Mills Company in accordance with an agreement between Government and the Company, in consideration of which a sum of Rs. 14,313 is annually paid by the Company subject to a rebate in the event of the supply falling short of the quantity contracted for. During the year under report a rebate of Rs. 1,063 had to be paid to the Company for short supply of water, the shortage in the reservoir being due to the failure of the late rains.

Water was supplied to the M. & S. M. Railway Company at their Hukeri Road Station at a charge of Rs. 50 per month. The total amount recovered from the Railway Company on this account during the year was Rs. 600.

On the 1st April, the gauge reading of the water level in the Dhupdal reservoir was 19·81 feet. The level gradually decreased to 13·50 feet on the 17th May. Owing to replenishment received the level rose to

15·50 feet on the 19th May, from which date the level decreased until the gauge reading was at the level of 6·00 feet on the 5th June. Subsequently owing to replenishment received the level rose to 14·84 feet and remained about this level until the 19th June. From this date onwards there was a gradual rise in the level until it reached 22·90 feet on the 6th July, causing overflow over the weir. During the whole monsoon the highest flood depth over the crest was 1·74 feet on the 12th July. The maximum discharge for the day was 30,183 cusecs. In order to store the water of the post-monsoon floods the first instalment of the work of temporary raising of the weir by two feet was commenced on 21st September and completed on 5th October. The work of the second instalment was started on the 6th October and finished (except 100 reserve bays) on the 18th October. The closure of 100 reserve bays was carried out from the 10th November to the 14th November. Water was conserved from the 15th November, when the level was 23·96 feet. The level rose up to 25·49 feet on 11th December i.e., 0·57 feet below the full supply level. The reduction in the F. S. L. obtained was due to the failure of the late rains.

The following table gives information regarding the area irrigated, revenue assessed, etc., as compared with the average of the previous three years :—

——	Area irrigated.	Gross assessed revenue.	Working expenses.
	Acres.	Rs.	Rs.
Average	6,656	58,332	13,896
1935-36	8,223	66,450	14,062

DHARWAR DIVISION.

MUCHKUNDI TANK.

This tank is solely dependent on local rains for its supplies and the storage of water in the tank is uncertain owing to the scanty rainfall in the area and the smallness of the catchment. The rainfall received during the year, although more than that of the previous year, was untimely, as a result of which there was greater demand for tank water. The supply of water in the tank was sufficient for irrigating all the lands dependent on it. On the 1st April the water level in the tank was at R. L. 1790·59 or 7·15 feet above the sill of the outlet. The tank received its first replenishment on the 14th June and the water level reached R. L. 1797·44 or 14 feet above the sill of the outlet. The highest level of water reached during the year was at R. L. 1797·74 on the 29th August i.e., 14·30 feet above the sill of the outlet. The level on the 31st March, was at R. L. 1791·65 or 8·21 feet above the sill. The gross assessed revenue was Rs. 929, while the working expenses amounted to Rs. 1,281.

DAMBAL TANK.

The tank was empty on the 1st April. It received its first replenishment on the 2nd April and the level of water reached was R. L. 145·20 or 9 feet above the silted bed of the tank. This was the highest level reached during the year under report. The tank received the second replenishment on the 5th October, when the level of water reached R. L. 144·80 or 8·60 feet above the silted bed. There was sufficient supply of water in the tank throughout for irrigating the lands dependent on it. The rayats, however, could not derive any benefit from the cultivation of the lands in the tank bed sold to them, as the tank suddenly received its full replenishment on the 2nd April 1935, when most of the crops raised therein were damaged by submergence. The level of water on the 31st March 1936 was R. L. 141·12 or 4·92 feet above the silted bed of the tank. Part of the land dependent on this tank is assessed at water rates, the balance being assessed at consolidated rates. The total area irrigated and the assessment levied under the former head (water rates) were respectively 264 acres and Rs. 1,215 compared with 30 acres and Rs. 139, the corresponding averages of the past three years. The irrigated area under consolidated assessment and the irrigation share of the land revenue assessed were 144 acres and Rs. 916, respectively. The total assessed revenue was Rs. 1,943, while the working expenses amounted to Rs. 40,612.

The work of constructing a feed channel from Kadampur North and South Nallas to Dambal Tank, which was undertaken on account of the scarcity conditions prevailing in the Mundargi Petha of the Dharwar District, was in progress. The work is expected to improve the annual run-off to the tank, which is far below the requirement at present.

MEDLERI TANK.

On the 1st April the water level of the tank was at R. L. 172·26 or 7·26 feet above the sill of the outlet. The tank received its first replenishment on the 8th June and the highest level reached during the year was R. L. 179·00 or 14 feet above the sill of the outlet. There was sufficient replenishment in the tank throughout the year. The water level on 31st March was R. L. 166·12 or 1·12 feet above the sill of the outlet. The area irrigated and the assessment levied thereon were 56 acres and Rs. 622 as compared with 37 acres and Rs. 450, respectively, the averages of the past three years. The gross assessed revenue was Rs. 787 and the working expenses amounted to Rs. 688.

MADAG TANK.

On the 1st April the water level was at R. L. 1874·40 or 1·14 feet above the sill of the outlet. The tank received its first replenishment on the 7th July and overflowed from the 8th July 1935 to 1st February 1936. The highest water level reached during the year was R. L. 1882·56 or 4·85 feet above the crest of the waste weir. Though there was scarcity of water during the hot weather especially in April and May, the canal having ceased to flow, there were no complaints due to precipitation from early showers and also as the type of cane planted does not require more than two or three waterings during the hot weather. The water level on the 31st March was R. L. 1875·55 or 2·29 feet above the sill of the outlet. The area irrigated and the assessment levied thereon were 503 acres and Rs. 2,439, respectively, as compared with 547 acres and Rs. 2,652, respectively, the corresponding averages of the past three years. The decreases both in the area irrigated and the assessment was due to less demand for tank water especially on account of the rainfall during the Rabi season being favourable. The gross assessed revenue amounted to Rs. 2,716, as compared with Rs. 2,989, the average of the previous three years, while the working expenses amounted to Rs. 1,329 as compared with Rs. 1,960, the average of the past three years.

ASUNDI TANK.

The tank was dry at the beginning of the year under report. The tank received its first replenishment on the 6th June and the highest level reached during the year (on the 19th October) was R. L. 105·52 or 6·52 feet above the sill of the outlet. The supply of water in the tank was inadequate in the hot weather for irrigating the lands dependent on it. The tank was empty on the 31st March 1936. The lands under this tank are partly assessed at water rates and partly at consolidated rates. The area irrigated and assessment levied thereon under the former head (water rates) was 70 acres and Rs. 276, as compared with 178 acres and Rs. 1,228, respectively, the corresponding averages of the past three years. The area under consolidated assessment was 172 acres and the irrigation share of land revenue assessed thereon was Rs. 710. The gross assessed revenue amounted to Rs. 1,386 as compared with Rs. 2,224, the average of the past three years. The working expenses amounted to Rs. 872.

DHARMA CANAL.

This canal is fed by the Dharma river and a number of tanks are in turn fed by the canal. The canal began to flow on the 5th July and continued to flow during the whole of the monsoon. All the second class tanks depending on this canal received good replenishment. A sum of Rs. 555 was spent on special repairs to the regulators during the year. The lands commanded by the canal are assessed partly at water rates and partly at consolidated rates. The area irrigated and the assessment levied thereon under the former head (water rates) was 489 acres and Rs. 2,661, respectively, as compared with 445 acres and Rs. 2,490, respectively, the corresponding averages of the previous three years. The gross assessed revenue (after deducting Rs. 23,156 to be credited to old work) amounted to Rs. 272, while the working expenses amounted to Rs. 1,813, as compared with Rs. 3,123, the average of the past three years.

KANARA DIVISION.

MAVINKOP TANK.

The management of this tank has been entrusted to the Revenue Department. The rainfall was 42·91 inches. The supply of water in the tank was adequate for irrigation. The area irrigated, which is assessed at consolidated rates, amounted to 575 acres and the irrigation share of land revenue was Rs. 2,045, as compared with 660 acres and Rs. 2,045 for the previous year. The working expenses amounted to Rs. 349, as compared with Rs. 419 during the previous year. The gross assessed revenue was Rs. 2,077.

SECTION II.

COMPRISING IRRIGATION WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.

GENERAL REMARKS.

The area of irrigation under, and revenue due from, works (for which neither capital nor revenue accounts are kept) in the Deccan and Gujarat, as recorded in the register of these works, were 284,302 acres and Rs. 9,23,900, respectively. The following tables give details (by Districts) of the area irrigated, expenditure incurred, revenue realised, etc. in respect of those irrigation works on which expenditure was incurred during the year :—

TABLE I.

Showing the area irrigated in the different Districts in the Deccan and Gujarat and the consolidated revenue and water rates assessed and recovered during the year 1935-36 in respect of Irrigation Works classed under "Works for which neither capital nor revenue accounts are kept" on which expenditure was incurred during the year.

Collectorate.	Number of works.	Area irrigated.	Revenue.			Remarks.
			Irrigation share.	Land share.	Total.	
		Acres.	Rs.	Rs.	Rs.	
Ahmedabad ..	32	587	(A) 1,619	3,123	4,742	(A) Includes Rs. 743 o account of "Direc Receipts,—Water rates"
Kaira ..	29	7,619	(B) 20,624	14,815	35,439	(B) Includes Rs. 13,22 on account of "Direc Receipts,—Water rates"
Panch Mahals ..	17	1,738	(C) 9,547	1,436	10,983	(C) Includes Rs. 8,85 on account of "Direc Receipts,—Water rates"
Surat ..	30	1,684	4,079	15,251	19,330	
Broach ..	4	154	289	984	1,273	
East Khandesh ..	1	129	1,043	411	1,454	
West Khandesh ..	1	26	(D) 1,040	..	1,040	(D) Direct Receipts—Water rates.
Nasik ..	50	5,547	(E) 56,718	11,641	68,359	(E) Includes Rs. 4,57 on account of "Dire Receipts,—Water rates"
Poona ..	1	70	(F) 524	..	524	(F) Direct Receipts—Water rates.
Sholapur ..	3	300	(G) 1,230	..	1,230	(G) Direct Receipts—Water rates.
Ahmednagar ..	2	1,922	(H) 16,670	..	16,670	(H) Direct Receipts—Water rates.
Belgaum ..	29	4,211	21,875	5,469	27,344	
Bijapur ..	2	621	2,059	1,938	3,997	
Dharwar ..	77	10,706	45,532	11,383	56,915	
Kanara ..	63	4,925	12,924	3,209	16,133	
Ratnagiri ..	1	15	827	..	827	
Total ..	342	40,254	1,96,600	69,660	2,66,260	

TABLE II

TABLE

Showing actual expenditure and receipts for the year 1935-36
neither Capital nor Revenue accounts are kept) on which

Collectorate.	Expenditure.						
	Direct Charges.						
	Extensions and improvements.	Maintenance and repairs.	Establishment.	Tools and plant.	Total.	Share of collection charges.	Grand total.
1	2	3	4	5	6	7	8
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Ahmedabad ..	4,159	15,943	17,756	690	68,071	162	70,905
Kaira ..	..	18,981				2,065	
Panch Mahals ..	214	10,328				607	
Surat ..	..	18,060	7,330	286	28,103	408	28,540
Broach ..	..	2,427				29	
East Khandesh ..	172	..	924	12	1,828	104	1,953
West Khandesh ..	..	720				21	
Nasik ..	1,491	46,168	46,469	626	94,754	5,306	1,00,060
Poona ..	1,940	15,392	38,424	228	55,984	10	55,994
Sholapur ..	..	1,999	1,913	28	3,940	35	3,975
Ahmednagar ..	Works 3,396 Ex. and Imp. 3	15,055	25,027	242	43,723	336	44,059
Belgaum ..	700	13,575	6,038	377	21,702	2,188	24,096
Bijapur ..	..	1,012				206	
Dharwar ..	2,985	35,451	15,141	915	54,492	4,565	59,057
Kanara ..	3,322	13,637	6,699	418	24,076	1,292	25,368
Ratnagiri ..	..	579	227	14	820	83	903
Total ..	Works 3,396 Ex. and Imp. 14,986	2,09,327	1,65,948	3,836	3,97,493	17,417	4,14,910

II.

on the Irrigation Works in the Deccan and Gujarat (for which expenditure was incurred during the year.

Actual Receipts.						
Direct receipts.			Indirect receipts share of consolidated revenue.	Grand total direct and indirect receipts.	Less refunds of revenue.	Gross receipts less refunds.
Water rates from irrigation.	Miscellaneous.	Total direct receipts.				
9	10	11	12	13	14	15
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
743	524	1,267	876	2,143	....	2,143
13,228	5,999	19,227	7,396	26,623	....	26,623
8,858	1,982	10,840	689	11,529	....	11,529
....	....	....	4,079	4,079	....	4,079
....	....	....	289	289	....	289
....	....	....	1,043	1,043	....	1,043
1,040	224	1,264	....	1,264	....	1,264
4,575	1,519	6,094	52,143	58,237	267	57,970
524	187	711	....	711	....	711
1,230	1,152	2,382	....	2,382	....	2,382
16,670	4,224	20,894	....	20,894	12	20,882
....	2	2	21,875	21,877	....	21,877
....	....	....	2,059	2,059	....	2,059
....	160	160	45,532	45,692	....	45,692
....	....	....	12,924	12,924	....	12,924
....	....	....	827	827	....	827
46,868	15,973	62,841	1,49,732	2,12,573	279	2,12,294

DETAILED REPORTS BY LOCAL OFFICERS.

NORTHERN CIRCLE.

AHMEDABAD, KAIRA AND PANCH MAHALS AND SURAT AND BROACH DIVISIONS.

KHARI SLUICES.

The flow in the Khari river was not satisfactory owing to the inadequate rainfall and the consequent absence of good floods. The area of transplantation had therefore to be restricted to about 1,800 acres. Good rains in the month of September however induced the cultivators to extend the transplantation of rice to about 3,500 acres. As the flow in the Khari river was subsiding, difficulty was felt in protecting the whole transplanted area, but it was over-come by a careful distribution of the available water supplemented by the supplies from the Bokh reservoir and the Hathmati Canal. The whole area was thus brought to maturity. Besides this a non-himayat paying area of about 307 acres was also irrigated under this system.

The Khari sluices, including the Goblaj tank, the Bherai and the Naika reservoirs were maintained in good order at a cost of Rs. 4,525. The sums of Rs. 2,366 and Rs. 3,372 were also spent on special repairs to the Goblaj tank and the Bherai reservoir, respectively. The side slopes of the dam of the Naika reservoir at Chanindra on the south-east side, which were washed off, were also repaired at a cost of Rs. 1,300 during the year. The miscellaneous revenue under the Khari sluices system amounted to Rs. 437 compared with Rs. 403 received in the previous year.

The following table compares the areas irrigated and the assessment levied during the year with the respective averages of the previous three years :—

—	Average.		1935-36.	
	Area.	Revenue after deducting remissions.	Area.	Revenue after deducting remissions.[*]
	Acres.	Rs.	Acres.	Rs.
I. Irrigation above Kalambandhi villages (of Mahij, Bidaj and Lali)	905	6,945	1,559	7,044
II. Irrigation from tanks that can be fed by the river Khari :—				
Goblaj	777	5,419	369[†]	4,082
Galki	377	1,242	....[‡]	1,623[§]
III. Irrigation from the Khari sluices proper (i.e., 11 Kalambandhi villages)	6,405	30,144	6,400	20,589
Total ..	8,464	43,750	8,328	33,338

[*] The revenue is consolidated.

[†] Includes 37 acres irrigated during the hot weather season.

[‡] No area was irrigated as the tank was empty due to scanty rainfall.

[§] Arrears of the past years recovered during the year.

The assessment in respect of irrigation dependent on the Khari sluices in the Kalambandhi villages is consolidated. The average rates per acre for land and water respectively were as under :—

—	Irrigation share.	Land share.	Total consolidated.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Government land	0 5 4	3 2 5	3 7 9
Alienated land	0 5 4	1 2 9	1 8 1

Muwalia Tank.

This is an important tank situated in the vicinity of Dohad town in the Broach and Panch Mahals Collectorate and it has a catchment area of about 30 square miles. During the year under review, it received partial replenishment due to scanty rainfall. The area irrigated was 824 acres and the net assessment amounted to Rs. 2,616. The miscellaneous revenue amounted to Rs. 866 compared with Rs. 524, received in the previous year. The tank and its dam, canals, etc. were maintained in good order at a cost of Rs. 4,448. Special repairs were carried out to the earthen dam of the tank at a cost of Rs. 458 during the year.

Old Tanks.

Improvements to 1 tank in the Ahmedabad Division and repairs to 18 tanks in the Ahmedabad Division, 30 tanks in the Kaira and Panch Mahals Division and 34 tanks in the Surat and Broach Division were carried out at a total cost of Rs. 1,319 and Rs. 52,320, respectively. The areas irrigated and the revenue derived from the old irrigation tanks and bunds were as under :—

Name of Collectorate.	Area irrigated.	Revenue.		
		Irrigation share.	Land share.	Total net consolidated assessment.
	Acres.	Rs.	Rs.	Rs.
Ahmedabad	11,641	13,670	44,279	57,949
Kaira	633	2,036	269	2,305
Panch Mahals	270	689	1,436	2,125
Broach	823	1,481	5,015	6,496
Surat	2,814	5,809	28,462	34,271
Total ..	16,181	23,685	79,461	1,03,146

DRAINAGE CHANNELS.

The drainage channels in the Ahmedabad, Kaira and Panch Mahals and Surat and Broach Divisions were maintained in good order at a cost of Rs. 8,347, Rs. 3,992 and Rs. 8,014, respectively. The protective and reclamation works in the Surat and Broach Division were maintained and repaired at a total cost of Rs. 7,746.

DECCAN IRRIGATION CIRCLE.

POONA IRRIGATION DIVISION.

RAKH TANK.

This tank is situated about 5 miles from Walha railway station of the Madras and Southern Mahratta Railway and is formed by an earthen dam constructed across a nala near Rakh village in Purandhar Taluka of the Poona District. The tank has two channels of a total length of 3⅝ miles. The area under command on channel No. 1, which is on the left bank, is 265 acres and that on channel No. 2 is 321 acres. The main channel is designed to discharge 12·8 cusecs leaving sufficient margin for all losses in transit. An area of 38 acres was irrigated and the revenue assessed amounted to Rs. 176 as compared with 43 acres and Rs. 398 respectively during the previous year.

KHAMGAON TANK.

This tank which is only partially completed, received replenishment during the monsoon from the Mutha Right Bank Canal. The supply available was issued for the irrigation of 70 acres and the irrigation revenue assessed was Rs. 347, the corresponding figures for the previous year being 118 acres and Rs. 617 respectively. The gross assessed revenue amounted to Rs. 402. The maintenance and repairs charges of the tank amounted to Rs. 370.

EFFLUENT IRRIGATION ON THE MUTHA RIGHT BANK CANAL.

The total area of sugarcane irrigated on effluent during the year was 1,055 acres as compared with 873 acres during the previous year. The average discharge pumped during the year was 10·23 cusecs out of which 9·82 cusecs were utilised for purposes of irrigation and the balance of ·41 cusecs was run off to the winter disposal area. The total area irrigated was 1,382 acres as compared with 1,143 acres during the previous year. The assessed revenue amounted to Rs. 52,580 as compared with Rs. 40,124 during the previous year. The rate for the supply of effluent for sugarcane was increased from Rs. 52 to Rs. 59 per acre during the year under report.

BANDHARAS (POONA DISTRICT).

Bandharas are small weirs built across streams in order that the level of the water flowing in the streams may be raised sufficiently to command the lands to be irrigated. The following table gives the area irrigated and the consolidated assessed revenue on the bandhara irrigation works in the Poona Collectorate during the year as compared with the average of the past three years :—

Particulars.	Area irrigated.	Consolidated revenue.		
		Irrigation share.	Land share.	Total.
	Acres.	Rs.	Rs.	Rs.
1935-36	2,818	14,246	4,960	19,206
Average	2,712	14,321	4,886	19,207

NASIK IRRIGATION DIVISION.

KHIRDI SATHE TANK.

This is a small tank in Yeola Taluka of the Nasik District. The tank is formed by an earthen dam and is dependent on local rains for its supply, which is generally sufficient for crops grown during the monsoon and rabi seasons.

On the 1st April, the level of water in the tank above the sill was 8·30 feet, the corresponding contents being 16·60 million cubic feet. The lowest level of water was reached on the 24th May. Replenishment commenced on the 19th June and the water level rose to 11 feet above the sill on the 31st October, the contents being 27 million cubic feet. The draw off for irrigation purposes commenced on the 7th July, when the level of water was 9·20 feet and the contents 20 million cubic feet. On the 31st March 1936, the level of water was 4·40 feet, the contents being 6·5 million cubic feet. The area irrigated during the year was 208 acres as compared with 652 acres during the previous year. The decrease was due to the shortage of rainfall. The assessed revenue amounted to Rs. 2,926 as compared with Rs. 5,327 during the previous year and the gross revenue was Rs. 3,322 as compared with Rs. 5,516 of the previous year. Remissions during the year amounted to Rs. 266.

BANDHARAS (NASIK DISTRICT).

There are numerous bandharas situated in this District. There are in all 299 such bandharas on the list. The expenditure incurred on repairs to bandharas (53 in number) during the year amounted to Rs. 46,521. The following table gives the area irrigated and the consolidated assessed revenue during the year as compared with the averages of the past three years :—

Particulars.	Area irrigated.	Consolidated revenue.		
		Irrigation share.	Land share.	Total.
	Acres.	Rs.	Rs.	Rs.
1935-36 ..	27,116	2,01,142	61,158	2,62.300
Average ..	28,434	1,90,969	50,257	2,41,225

AHMEDNAGAR DIVISION.

VISAPUR TANK.

The Visapur Tank dam which is situated about 2 miles from the Visapur railway station on Dhond-Manmad Railway line is built across the Hanga river, a tributary of the Bhima river. It was started as a famine relief work in 1896 and was subsequently completed in successive stages by criminal tribes and convict labour by June 1927. This earthen dam which is 7,440 feet long and 84 feet high, forms a lake having a net capacity of 1,136 million cubic feet. The estimated cost of the whole scheme was Rs. 41 lakhs of which a sum of Rs. 21 lakhs was spent on the dam and head works and the balance on the construction of the canal, distributaries and minors, which aggregate 46 miles in length. The total area under command is 95,000 acres of which 26,000 acres are irrigable. The catchment area of the tank is 159 square miles in extent and it has a capacity of 1,172 million cubic feet. The irrigation from this tank was first started during the rabi season of 1929-30. Owing to an increased demand for water due to the starting of a small sugar factory on the Chimbla Distributary, the waste weir was raised by 2 feet in March 1934 to increase the storage in the tank by 130·20 million cubic feet. The yield from the catchment (159 square miles) was 338·34 million cubic feet during the year, the average rainfall being 24·46 inches.

On the 1st April, the level of water in the tank was 32·15 feet above the still of the outlet, the contents being 793·99 million cubic feet. The lowest level of 28·15 feet was reached on the 7th June, the corresponding contents then being 615·83 million cubic feet. Replenishment was received in the tank on the 8th June, the corresponding contents being 617·87 million cubic feet. The highest level of 41·50 feet was reached on the 5th October and continued up to the 10th October, with a storage equivalent to 820·67 million cubic feet. On the 31st March 1936, the level of water in the tank was 24·15 feet, the corresponding contents being 464·74 million cubic feet. There was no flow over the waste weir during the year as the replenishment was not sufficient to fill the tank. The area irrigated, the irrigation assessment and the gross assessed revenue were 1,922 acres, Rs. 21,984 and Rs. 25,834 as compared with 1,834 acres, Rs. 12,397 and Rs. 16,395 respectively, the averages of the past three years. The expenditure incurred on maintenance and repairs to the tank and canal amounted to Rs. 7,548.

KUNTEPHAL TANK.

This is a very small tank with a capacity of about 57 million cubic feet. It is situated on a small nala near Shevgaon about 45 miles from Ahmednagar and it is entirely dependent for its supply on local rains. On 1st April, the level of water in the tank was 10·99 feet above the sill, the corresponding contents being 27·60 million cubic feet. The lowest level reached was 4·64 feet, the contents then being 4·22 million cubic feet. Replenishment was received on the 13th June and the level rose to 7·40 feet equivalent to a storage of 7·60 million cubic feet. The highest water level of 15·30 feet was reached on the 4th October. The water level on 31st March 1936 was 10·48 feet, the corresponding contents being 24·80 million cubic feet. The rainfall during the year was 27·15 inches as compared with 25·98 inches, the average of the past 3 years. There was no demand for water during the year and no irrigation was done. The expenditure incurred on maintenance and repairs amounted to Rs. 1,193.

MANDAVGAN TANK.

This tank is situated on a nala about 2½ miles away from Mandavgan village, taluka Shirgonda in the Ahmednagar Distrct. The earthen dam is 1,605 feet in length. The tank has a hilly catchment of about 5·32 square miles. It is entirely dependent on local rains for its supply of water. This tank has been taken over from the District Local Board, Ahmednagar, from the rabi season of 1932–33 for irrigation management. The tank was dry on the 21st April. Replenishment was received on the 13th June. The highest water level was reached on the 1st September, the contents being 19·85 million cubic feet. The area irrigated and the water rates assessed during the year were 13 acres and Rs. 64 respectively as compared with 17 acres and Rs. 98 respectively during the previous year. The decreases in the area irrigated and the assessment were due to timely rainfall. The expenditure incurred on maintenance and repairs amounted to Rs. 945.

CENTRAL CIRCLE.

The area irrigated and the gross assessed revenue on small tanks were 326 acres and Rs. 1,966, respectively. The area irrigated and the irrigation share of revenue on the old bandharas and channels in the Khandesh Division were 8,631 acres and Rs. 65,132, respectively.

SHOLAPUR DIVISION.

WADSHIVNE TANK.

On the 1st April the level of the water in the tank was at R. L. 452·42 i.e., 16·42 feet over the sill of the outlet and this level gradually fell to 450·11. The highest level reached was 455·40 on the 2nd September i.e., 0·60 over the crest of the waste weir, which overflowed for 26 days in September and also for a few days in October.

During the year under report, the area irrigated and the gross assessed revenue were 300 acres and Rs. 1,607 as compared with 388 acres and Rs. 1,789, the corresponding averages of the preceding three years.

KHANDESH DIVISION.

TALWADA TANK.

The supply in this tank is generally uncertain. On the 1st April, the contents in the tank were 1·15 million cubic feet and the tank gradually dried up. The first replenishment was received on the 23rd June, when the contents were 1·64 million cubic feet. The maximum storage of 10·12 million cubic feet was reached on the 31st August and the year closed, leaving the tank again dry.

The rainfall gauged at the tank was 15·46 inches as compared with 19·78 inches, the average of the preceding three years. The area irrigated was 26 acres and the gross assessed revenue amounted to Rs. 359. The revenue realised from water rates during the year was Rs. 1,043, the miscellaneous realizations being Rs. 221. The expenditure incurred on the maintenance and repairs to the tank and canal was Rs. 710.

OLD WORKS.

The old bandharas and channels are grouped as under :—

1. The Upper Panjhra river group including the Gondur Tank.
2. The Kan river group.
3. The Burai river group.
4. The Girna river group.
5. The Bori river group.

The subjoined table shows the area irrigated and the revenue derived from these works as compared with the averages of the preceding three years :—

Area irrigated.		Revenue.				Total.	
		Irrigation share.		Land share.			
1935-36.	Average.	1935-36.	Average.	1935-36.	Average.	1935-36.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
8,631	8,631	65,132	65,033	13,189	13,186	78,321	78,219

The expenditure on these bandharas was as under :—

	Rs.
Extensions and improvements	172
Repairs	10

An expenditure of Rs. 160 was also incurred on river and rain gauge operations during the year.

SOUTHERN CIRCLE.

BELGAUM DIVISION.

There are approximately 525 second class irrigation tanks situated in the Belgaum Division. During the year under report repairs to 31 tanks were carried out at a cost of Rs. 14,587 and in addition to this sum an expenditure of Rs. 700 was incurred on the survey of the old tanks. The area irrigated during the year was 8,628 acres, the irrigation share of land revenue being Rs. 1,53,220. The total direct and indirect receipts amounted to Rs. 1,00,654 as compared with Rs. 1,70,145 during the previous year. The remissions sanctioned during the year amounted to Rs. 26,594.

DHARWAR DIVISION.

There are about 2,940 tanks in this Division. During the year under report an expenditure of Rs. 34,061 was incurred on repairs to 77 tanks and a sum of Rs. 2,985 was spent on extensions and improvements etc. The area irrigated during the year was 49,809 acres and the irrigation share of land revenue amounted to Rs. 1,44,773. The remissions granted during the year amounted to Rs. 38,040. The total direct and indirect receipts were Rs. 1,45,492 as compared with Rs. 1,70,145 for the previous year.

KANARA DIVISION.

In this Division there are about 2,128 tanks. During the year an expenditure of Rs. 13,637 was incurred on repairs to 63 tanks. In addition, a sum of Rs. 3,322 was spent on " surveying irrigation tanks and preparing projects for their improvements ". The area irrigated during the year was 30,481 acres and the irrigation share of land revenue amounted to Rs. 94,486, the whole of which was realised during the year.

RATNAGIRI DIVISION.

There are only three tanks in this Division. Special repairs to the tank at Varad, estimated to cost Rs. 768, were carried out at a cost of Rs. 579 during the year under report. The area irrigated was 913 acres and the irrigation share of land revenue was Rs. 6,583. The gross assessed revenue amounted to Rs. 6,583, the whole of which was realised during the year.

SECTION III.

IRRIGATION RESEARCH DIVISION.

In the Deccan, when a large perennial canal is opened, widespread water-logging is liable to ensue: Some of this water-logging dries out later, but the damage often extends rapidly into the valleys, and unless steps are taken to set matters right, the damage, consisting mainly of salt-efflorescence, becomes permanent. The seriousness of the menace was realised as early as 1888 and the controversy regarding the relative effect of channel losses and waste-ful irrigation and the best methods to adopt to safeguard the land became yearly more acute. Various experiments were carried out at the instance of the Agricultural Department but by 1913 it was clear that all the methods tried so far had failed. It was eventually decided to open a Special Irrigation Division in order that the question of canal development, especially as regards safeguarding the soil, might form the subject of investigation. In June 1916, the Division (now called the Irrigation Research Division) was formed and the work entrusted to it was the contouring of the commanded areas, the carrying out of a careful survey and classification of the surface and sub-soil, the selection and marking out of definite areas suitable for " blocks " for perennial and other crops, the designing of the drainage works required, the indication of suitable lines of communication and centres for the establishment of crushing, grinding, and refining and other machinery for trade purposes and the study of the question of the reclamation of waste lands and areas damaged by water-logging and salt-efflorescence and the growth of useful timber in such tracts and along the main canal. In short, research and investigation into all the problems relating to irrigation by means of actual experiment has been the sphere of work of this Division.

The investigations coming within this sphere may be broadly grouped under five heads, viz. :—

(1) Irrigation management,

(2) Irrigation requirements or the inter-action of agricultural requirements and irrigation limitations,

(3) Soil physics of irrigated tracts, as affecting,

(4) Drainage and reclamation and

(5) Hydrodynamic research.

The work done by this Division may be classified as under :—

(1) Sub-soil survey and observation of sub-soil water levels,

(2) Irrigation and blocks,

(3) Sub-soil drainage construction,

(4) Drainage schemes for allotted sugar factory areas,
(5) Irricultural research, and
(6) Hydrodynamic research.

A brief account of the work done during the year under each of these heads is given below :—

(1) SUB-SOIL SURVEY AND OBSERVATIONS OF SUB-SOIL WATER LEVELS.

The observations of damage and well water levels on the Godavari, the Pravara and the Nira Canals were continued. The sub-soil water table has receded on the Pravara and the Godavari Canals and the damage has decreased due to restriction of sugarcane according to the capacity of the land to stand up to such cultivation. Damage increased on the Nira Canals. Safe limits of sugarcane areas to be allowed on each distributary of the Nira Right Bank Canal are being prepared.

(2) IRRIGATION AND BLOCKS.

Individual inspection of lands as regards the drainage and the suitability of the soil for fruit-gardens for which applications were received were carried out during the year. Applications for the exemption from the rule disallowing perennial irrigation within 1/4th mile limit of towns and villages were investigated.

(3) SUB-SOIL DRAINAGE CONSTRUCTION.

Detailed observations were made in the areas served by the drainage schemes already constructed. The improvement in the condition of the damaged areas continues. Proposals for additional drainage in the Nandur-Khandala Drainage scheme on the Pravara Left Bank Canal and the Deolali Drainage scheme on the Pravara Right Bank Canal were considered. A drainage scheme in Piliv Mahal on the Nira Right Bank Canal was surveyed but it was found unfeasible due to its cost being prohibitive.

(4) DRAINAGE SCHEMES FOR ALLOTTED FACTORY AREAS.

Considerable progress was made in the projects for land drainage in the allotted sugar factory areas and plans and estimates for several projects of drainage schemes in respect of the Phaltan Sugar Works, the Saswad Mali Sugar Factory on the Nira Right Bank Canal, the Marsland Price and Company on the Nira Left Bank Canal and the Maharashtra Sugar Mills on the Pravara Left Bank Canal were prepared. A careful watch is being kept on the factory areas in many catchments of which full sugarcane concentration has been reached. Increase in damage was observed in the case of Messrs. Marsland Price and Company's area on the Nira Left Bank Canal.

(5) IRRICULTURAL RESEARCH.

In the Hadapsar Effluent Experimental Area, field experiments were carried out with a view to finding out the best varieties of sugarcane and the most suitable treatment and methods of cultivation of sugarcane manured by effluent. The question of the disposal of the increasing quantity of effluent by more concentrated and prolonged application and the effect on the soil of effluent manuring year after year was also under investigation.

In the Baramati Experimental Salt Area, field experiments on soil reclamation after drainage based on the data from laboratory and plot scale experiments were carried out. Methods of cultivation, fertilizers, green manures and sugarcane varieties suited to the process of reclamation were tested with satisfactory results. This research has wide application on the damaged areas on the Deccan Canals.

(6) HYDRODYNAMIC RESEARCH.

During the year, several experiments were, carried out at the Hydrodynamic Research Station at Lake Fife (Khadakwasla) the most important of which were :—

(1) Those on behalf of the Railway Board in connection with the Hardinge Bridge—Eastern Bengal Railway, and

(2) Those required in the interest of the Nira Valley development and model experiments.

The model experiments carried out have indicated effective yet inexpensive measures to improve the flow of the river and thus remove the danger of bridges or other masonry works being out-flanked by the river. Other experiments in connection with the exclusion of bed silt from canals, suitable devices (Model) to prevent scour downstream under jet velocity conditions, etc., were also carried out during the year under report.

STATEMENT

Statement of Area irrigated by Irrigation Works in the Bombay

No.	Name of work.	Area irrigated.					Double cropped.	
		Kharif.	Rabi.	Total.	Flow.	Lift.	Area irrigated.	Percentage of total area.
1	2	3	4	5	6	7	8	9
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
	PRODUCTIVE.							
	Southern Circle.							
1	Gadikeri Tank	*418	..	*418	*418	..	..	..
2	Mavinkop Tank	*575	..	*575	*575	..	..	..
	Central Circle.							
3	Ekruk Tank	(1,234) 1,502	(1,225) 1,614	(2,459) 3,116	3,050	66	..	..
4	Shahada Channel	(713) 131 *587	(922) 523 *418	(1,635) 654 *1,005	654 *1,005	..	..	..
	Total, Productive ..	1,633 *1,580	2,137 *418	3,770 *1,998	3,704 *1,998	66	..	..
	UNPRODUCTIVE.							
	Northern Circle.							
5	Hathmati and Khari Cut Canals	†805 ‡3,804	1,697 1,319	2,502 5,123	2,430 4,969	72 154	..	..
6	Wangroli Tank	765	168	933	917	16	..	..
7	Savli Tank	532	47	579	576	3	..	..
8	Sahiat Tank	277	139	416	416	..	..	..
9	Tranza-Nagramma Tanks	..	..	..	..	..	..	..
10	Futelao Tank	..	..	..	..	..	..	..
	Deccan Irrigation Circle.							
11	Nira Left Bank Canal ..	(27,810) 35,044	(36,529) 21,372	56,416	56,121	295	12,841	23
	Shetphal Tank	(2,222) 3,215	(2,422 974	4,189	4,189	..	1,147	27
12	Nira Right Bank Canal ..	(23,397) 17,483	(17,590) 13,410	30,893	30,886	7	43	0·13
13	Mhaswad Tank	(2,639) 2,902	(606) 675	3,577	3,569	8	2	..
14	Mutha Canals	(7,452) 7,938	(4,866) 1,235	9,174	9,048	126	10	0·11
	Matoba Tank (*e*)	(631) 915	(1,616) 1,476	2,391 29(*h*)	2,391	..	..	..
15	Kasurdi Tank (*e*)	(5) 5	(23) 24	29	29	..	..	..
16	Shirsuphal Tank (*e*)	(399) 430	(591) 458	888	888	..	..	..
17	Bhadalwadi Tank (*e*)	(165) 182	(538) 541	723	723	..	..	..

I-E.

Province during the year 1935-36.

Average discharges, cubic feet per second.				Area irrigated per cubic foot per second.				Base to which the duties of water are calculated.	
At Head.		Utilized.		Discharged at Head.		Utilized.		Kharif.	Rabi.
Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.		
10	11	12	13	14	15	16	17	18	19
				Acres.	Acres.	Acres.	Acres.		
..	..	..	..	..	..	..	..	15th February to 14th October.	15th October to 14th February.
..	..	..	..	..	..	..	..		
13·54	20·70	13·54	20·70	113	88	113	88	Do.	Do.
6·70	12·80	6·70	12·80	183	105	183	105		
..	..	..	..	..	..	..	..		
§153 60	¶53 13	§66 60	¶49 13	** ·02 **52·25	32·02 101·46	**9·32 **52·25	34·63 101·46	15th June to 15th November.	16th November to 14th February.
61·27	7·39	61·27	7·39	12·49	22·73	12·4	22·73	15th June to 15th November.	16th November to 14th February.
49·05	1·57	49·05	1·57	10·85	29·94	10·85	29·94		
31·64	20·25	31·64	20·25	8·75	6·86	8·75	6·86		
..	..	..	..	..	..	..	..		
..	..	..	..	..	..	..	..		
403	374	327	347	69	98	(*i*)85	(*i*)10	15th February to 14th October.	15th October to 14th February.
21	25	21	25	106	97	106	97		
292	314	278	290	(*a*)60	(*a*)43	(*a*)63	(*a*)46	Do.	Do.
74	90	74	90	(*a*)39	(*a*)7	(*a*)39	(*a*)7	Do.	Do.
165	109	(*c*) ..	86	(*d*)45	(*d*)45	(*c*) ..	(*i*)57	Do.	Do.
8·8	17	8·8	17	72	95	72	95	Do.	Do.
..	..	..	..	..	..	..	..	Do.	Do.
4·2	4·5	4·2	4·5	95	127	95	127	Do.	Do.
2·8	5	2·8	5	59	108	5	108	Do.	Do.

STATEMENT

No.	Name of work.	Area irrigated.					Double cropped.	
		Kharif.	Rabi.	Total.	Flow	Lift.	Area irrigated.	Percentage of total area.
1	2	3	4	5	6	7	8	9
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—*contd.*	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
	UNPRODUCTIVE—*contd.*							
	Deccan Irrigation Circle—contd.							
	Lake Beale—Darna Dam	(348) 348	(153) 153	501	..	501	..	..
18	Godavari Right Bank Canal	(5,272) 8,356	(5,641) 956	9,312	9,290	22	407	4
	Godavari Left Bank Canal	(4,161) 6,483	(5,085) 952	7,435	6,757	678	738	10
19	Chankapur Tank—Girna Canal ..	(3,355) 4,974	(3,541) 3,896	8,870	8,842	28	10	0·11
	Kadwa River Works — Palkhed Canal ..	(823) 1,203	(1,367) 1,095	2,293	1,977	321	..	..
20	Kadwa River Works — Ojhar-Tambat Canal	(638) 817	(749) 364	1,181	1,181	..	..	..
	Kadwa River Works — Wadali Canal ..	(392) 502	(595) 391	893	893	..	..	..
21	Parsul Tank (*e*)	(288) 314	(417) 387	701	701	..	..	..
	Pravara Right Bank Canal	(4,860) 5,813	(3,298) 365	6,178	6,178	..	152	2
22	Pravara Left Bank Canal ..	(14,863) 18,241	(14,195) 2,634	20,875	20,644	231	674	3
23	Bhatodi Tank (*e*)..	(153) 160	(449) 525	685	681	4	..	..
	Central Circle.							
24	Koregaon Tank	(56) 68	(335) 390	(391) 458	438	20	..	..
25	Ashti Tank	(890) 975	(1,067) 1,247	(1,957) 2,222	2,216	6	..	..
26	Pathri Tank	(15) 19	(396) 428	(411) 447	421	26	..	..
27	Jamda Canals	(503) 538	(666) 706	(1,169) 1,244	1,243	1	..	..
28	Hartala Tank	(14) 15	(5) 6	(19) 21	21	..	..	..
29	Mhaswad Tank	(5) 6	.. ..	(5) 6	6	..	..	..
30	Lower Panjhra River Works	(1,440) 259 *1,194	(763) 723 *74	(2,203) 982 *1,268	982	..	514	23·33
31	Krishna Canal	(3,288) 3,832	(488) 602	(3,776) 4,434	3,812	622	23	0·60
32	Revari Canal	(84) 124	(240) 2 6	(334) 410	409	1	19	5·69
33	Upper Man River Works	(203) 244	(539) 631	(742) 875	873	2	107	14·42
34	Yerla River Irrigation Works	(218) 24[illegible]	(1,559) 1,725	(1,777) 1,974	1,960	14	125	7·03

I-E—*contd.*

Average discharges, cubic feet per second.				Area irrigated per cubic foot per second.				Base to which the duties of water are calculated.	
At Head.		Utilized.		Discharged at Head.		Utilized.		Kharif.	Rabi.
Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.		
10	11	12	13	14	15	16	17	18	19
				Acres.	Acres.	Acres.	Acres.		
..	..	..	..	..	..	..	..	15th February to 14th October.	15th October to 14th February.
177	165	177	165	(*g*) 29	(*g*) 34	(*g*) 29	(*g*) 34		
115	185	115	185	(*g*) 36	(*g*) 28	(*g*) 36	(*g*) 28		
50	74	50	74	67	47	67	47	Do.	Do.
24	27	24	27	34	50	34	50	Do.	Do.
10	10	10	10	63	74	63	74	Do.	Do.
8	10	8	10	49	59	49	59	Do.	Do.
2	5	2	5	28	37	28	37	Do.	Do.
72·61	62·43	62·61	54·00	(*b*) 67	(*b*) 52	(*b*)(*i*) 77	(*b*)(*i*) 61	Do.	Do.
332	310·93	302·26	281·63	(*i*) 45	(*b*) 45	(*b*)(*i*) 49	(*b*)(*i*) 50	Do.	Do.
0·32	0·79	0·32	0·79	(*f*) 488	(*f*) 568	(*f*) 488	(*f*) 568	Do.	Do.
0·42	2·90	0·42	2·90	133	116	133	116	Do.	Do.
2·55	6·39	2·55	6·39	356	172	356	172	Do.	Do.
0·30	2·80	0·30	2·80	50	141	50	141	Do.	Do.
27·49	45·51	27·49	45·51	19	24	19	24	Do.	Do.
0·15	0·19	0·15	0·19	19	89	19	89	Do.	Do.
0·38	0·15	0·38	0·15	13	..	13	..	Do.	Do.
0·97	0·82	0·97	0·82	1,513	1,387	1,513	1,387	Do.	Do.
52·25	78·02	52·25	78·02	92	62	92	62	Do.	Do.
2·24	3·83	2·24	3·83	46	94	46	94	Do.	Do.
0·58	3·03	0·58	3·03	395	214	395	214	Do.	Do.
3·76	8·43	3·76	8·43	74	218	74	218	Do.	Do.

STATEMENT

No.	Name of work.	Area irrigated.					Double cropped.	
		Kharif.	Rabi.	Total.	Flow.	Lift.	Area irrigated	Percentage of total area.
1	2	3	4	5	6	7	8	9
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—*concld.*	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
	UNPRODUCTIVE—*concld.*							
	Central Circle—concld.							
35	Chikhli Canal	(250) 306	(85) 101	(335) 407	400	7	7	2·08
36	Maini Tank	(345) 412	(1,250) 1,404	(1,595) 1,816	1,796	20	23	1·44
	Southern Circle.							
37†	Gokak Canal, First Section and Storage Works.	5,715	2,508	8,223	7,927	296	677	8·23
38	Muchkundi Tank	32	..	32	32	..	..	..
39	Dambal Tank	206 *144	55 ..	261 *144	264 *144	..	..	..
40	Medleri Tank	52		56	56	..	..	..
41	Madag Tank	316	18	503	503	..	..	..
42	Asundi Tank	60	1 *17.	70 *172	68 *172	2	..	..
43	Dharma Canal	489 *5,227	.. ..	489 *5,227	489 *5,227	..	..	..
	Total, Unproductive ..	135,425 *6,565	66,270 *246	201,695 *6,811 29(*h*)	198,212 *6,811	3,483	17,519	8·40
	Grand Total ..	137,058 *8,145	68,407 *664	205,465 *8,809 29(*h*)	201,916 *8,809	3,549	17,519	8·17

Note.—The bold figures in brackets represent areas actually irrigated during the respective seasons and the duties have
crops are irrigated. To obtain correct duties therefore these crops have to be added to the rabi areas.

(*a*) Low duties on the Nira Right Bank Canal and Mhaswad Tank are due to scattered nature of irrigation.

(*b*) The duties on the Pravara Canals are low due to high proportion of sugarcane and other perennial crops.

(*c*) Figures of "utilized" discharge are not available, as the quantity let into the Matoba Tank could not be accurately

(*d*) The low duties are due to high proportion of perennial irrigation.

(*e*) There is generally no supply in the Kasurdi, Shirsuphal, Matoba, Bhadalwadi, Parsul and Bhatodi Tanks in the hot
and other causes. The actual number of days on which the channels were in flow has therefore been taken

(*f*) The high duties on the Bhatodi Tank are due to concentrated irrigation on small channel, and because major

(*g*) The low duties on the Godavari canals are due to weed trouble which causes heavy losses in transit. There
throughout the year.

(*h*) Area irrigated by underground percolation.

(*i*) The difference between the discharge at head and utilized in respect of the Nira Left Bank Canal was due
Pravara Canals and the Mutha Canals it was due to water having run to waste through escapes, etc.

* Area under consolidated assessment.

† Includes 190 acres for hot season.

‡ Includes 669 acres for hot season.

§ 87 (153—66 = 87) cusecs were supplied to the Khari Cut Canal and Khari Sluices through Bhujwa Channel to Bokh

¶ 4 (53 —49 = 4) cusecs were used in filling village tanks for domestic use.

**Duties in columns 14 and 16 are calculated only on the kharif area irrigated during the year.

I-E—*concld.*

Average discharges, cubic feet per second.				Area irrigated per cubic foot per second.				Base to which the duties of water are calculated.	
At Head.		Utilized.		Discharged at Head.		Utilized.		Kharif.	Rabi
Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.		
10	11	12	13	14	15	16	17	18	19
				Acres.	Acres.	Acres.	Acres.		
0·72	1·22	0·72	1·22	402	208	402	208	15th February to 14th October.	15th October to 14th February.
0·88	4·52	0·88	4·52	415	297	415	297	Do.	Do.
57·00	48·42	57·00	48·42	96·39	94·61	96·39	94·61	Do.	Do.
..	..	..	..	..	..	..	..	Do.	Do.
2·11	2·24	2·11	2·24	165·88	25·89	165·88	25·89	16th January to 15th October.	16th October to 15th January.
·31	·36	·31	·36	167·74	11·11	167·74	11·11	Do.	Do.
3·76	6·69	3·76	6·69	84·04	27·95	84·04	27·95	Do.	Do.
1·09	2·75	1·09	2·75	55·05	66·18	55·05	66·18	Do.	Do.
35·18	24·46	35·18	24·46	162·48	..	162·48	..	Do	Do.
..	..	..	..	..	..	..	..		
..	..	..	..	..	..	..	..		

been calculated on these figures. In the rabi season in addition to pure rabi crops, perennial and eight months

measured.

weather season. Even during the monsoon and rabi seasons the channels are closed for days together due to rainfall
for purposes of calculating average discharge and duties. No discharge could be worked out on the Kasurdi Tank.
portion of irrigation is seasonal.
is however improvement over the previous year's figures due to rush system of irrigation which was followed

water having been let into the Shetphal Tank and run to waste through scouring sluices. In regard to the

Reservoir.

STATEMENT I-F.

Statement showing water-rates per acre in force during 1935-36 on Irrigation Works in the Bombay Presidency.

No.	Name of Work.	WATER-RATES.							Single watering.	Occupier's rate.	Owner's rate.	Water advantage.
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.				
	Works for which Capital and Revenue Accounts are kept.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	PRODUCTIVE.											
	Southern Circle.											
1	Gadikeri Tank * ..	..	..	..	..	..	..	..	..			
2	Mavinkop Tank *. ..	..	..	..	..	..	..	..	..			
	Central Circle.											
3	Ekruk Tank a ..	..	A 35 B 17½	8	3	5	7	..	2	*Nil.*	*Nil.*	*Nil.*
4	Shahada Channel a ..	..	A 23 B 14	8	3	5	6	..	2			
	UNPRODUCTIVE.											
	Northern Circle.											
5	Hathmati Canal a[1] ..	..	*(b[4])*	..	D 3 E 1	3	6	..	2			
	Khari Cut Canal a[1]	..	*(b[4])*	..	D 7 E 1	5	6	..	1 **2			
6	Wangroli Tank a[2] ..	..	*(b[4])*	6½	D 5 E 2½	4	6	..	1½			
7	Savli Tank a[4] ..	..	*(b[4])*	8	D 5 E 4	4	6	..	1½			
8	Saiat Tank a[5] ..	..	*(b[4])*	6½	D 4 E 2½	4	6	..	1½			
9	Tranza Nagrama Tanks. a[3]	..	*(b[4])*	6	D 4 E 2	4	6	..	1			
10	Futelao Tank a[6] ..	..	*(b[4])*	..	D 4 E 2	a[7] 3 a[8] 2	5	..	a[9] 1	*Nil.*	*Nil.*	*Nil.*
	Deccan Irrigation Circle.											
1	Nira Left Bank Canal. Shetphal Tank *(b)*..	§19 ¶16	M 45 C 66 B 22½ K 15	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½		*(e)*2			
12	Nira Right Bank Canal *(b)*.	§19 ¶16	M 45 C 66 B 22½ K 15	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½		*(e)* 2			
13	Mhaswad Tank *(d)* ..	..	X	8	3	5	6	..	*(e)* 2			

STATEMENT I-F—*contd.*

No.	Name of Work.	WATER-RATES.							Single watering.	Occupier's rate.	Owner's rate.	Water advantage.
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.				
	Works for which Capital and Revenue Accounts are kept—*contd.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs	Rs.			
	UNPRODUCTIVE—*contd.*											
	Deccan Irrigation Circle —contd.											
14	Mutha Canals and Matoba Tank (*c*)—											
	Sugarcane under the Mutha Canals within the Poona City and Suburban Municipal and Cantonment limits or within one mile of those limits.	..	50									
	On all remaining land commanded by both the canals.	..	M 45	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½	..	(*e*) 2	*Nil.*	*Nil.*	*Nil.*
	Pan gardens ..	..	C 66									
	Perennial crops other than sugarcane and pan gardens.	..	B 22½									
	Pomegranates ..	..	15									
	Matoba Tank ..	..	(*f*)									
15	Kasurdi Tank (*d*) ..	..	X	8	3	5	6	..	(*e*) 2	*Nil.*	*Nil.*	*Nil.*
16	Shirsuphal Tank (*d*)..	..										
17	Bhadalvadi Tank (*d*)..	..										
18	Godavari Right Bank Canal (*b*). Godavari Left Bank Canal (*b*).	§19 ¶16	M 45 C 66 B 22½ K 15	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½	..	(*e*) 2			
19	Chankapur Tank—Girna Canal (*d*) ..	..	X	8	3	5	6	..	(*e*) 2			

STATEMENT I-F—*contd.*

No.	Name of Work.	Water-rates.							Single watering.	Occupier's rate.	Owner's rate.	Water advantage.
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.				
	Works for which Capital and Revenue Accounts are kept— *contd.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	UNPRODUCTIVE—*contd.*											
	Deccan Irrigation Circle —concld.											
20	Kadwa River Works (*d*)—		X	8	3	5	6	..	(*e*) 2	*Nil.*	*Nil.*	*Nil.*
	Waghad Tank ..	..										
	Palkhed Canal ..	..										
	Ojhar-Tambat Canal	..										
	Wadali Canal ..	..										
21	Parsul Tank (*d*) ..	..										
22	Pravara Canals (*b*) ..	§19 ¶16	M 45 C 66 B 22½ K 15	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½	..	(*e*) 2			
23	Bhatodi Tank (*d*) ..	..	X	8	3	5	6	..	(*e*) 2			
	Central Circle.											
24	Koregaon Tank a ..	..	A 28 B 14	8	3	5	6	..	(*e*) 2	*Nil.*	*Nil.*	*Nil.*
25	Ashti Tank a ..	..						..	(*e*) 2			
26	Pathri Tank a ..	..						..	(*e*) 2			
27	Jamda Canals a ..	..							(*e*) 2			
28	Hartala Tank a ..	..						..	(*e*) 2			
29	Mhasva Tank a ..	..							(*e*) 2			
30	Lower Panjhra River Works a	..						..	(*e*) 2			
31	Krishna Canal a ..	..	A 32 B 16	8	3	5	8	..	(*e*) 2			
32	Revari Canal a ..	..	A 28 B 14	8	3	5	6	..	(*e*) 2			
33	Upper Man River Works a	..	A 28 B 14	8	3	5	6	..	(*e*) 2			
34	Yerla River Irrigation Works a	..	A 28 B 14	8	3	5	6	..	(*e*) 2			
35	Chikhli Canal a ..	..	A 28 B 14	8	3	5	6	..	(*e*) 2			
36	Maini Tank a ..	..	A 28 B 14	8	3	5	6	..	(*e*) 2			

STATEMENT I-F—*concld.*

No.	Name of Work.	WATER-RATES.							*			
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.	Single watering.	Occupier's rate.	Owner's rate.	Water advantage.
	Works for which Capital and Revenue Accounts are kept —*concld.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	UNPRODUCTIVE —*concld.*											
	Southern Circle.											
37	Gokak Canal, 1st Section and Storage Works (*u*)	..	(*b*¹) 27½ (*b*²) 20	8	3	5	15	..	*2	*Nil.*	*Nil.*	*Nil.*
38	Muchkundi Tank (*s*) ..	..	(*b*¹) 10 (*b*²) 5	..	2	2	5	..	1			
39	Dambal Tank (*w*) ..	..	(*x*) 14	(*y*) 6 (*z*) 7½	(*m*) 4	(*n*) 4½	(*l*) 7	..	(*j*) 1 (*k*) 2			
40	Medleri Tank (*w*) ..	..	(*x*) 14	(*y*) 6 (*z*) 7½	(*m*) 4	(*n*) 4½	(*l*) 7	..	(*j*) 1 (*k*) 2			
41	Madag Tank (*w*) ..	..	(*x*) 12	(*y*) 6 (*z*) 7½	(*m*) 4	(*n*) 4½	(*l*) 7	..	(*j*) 1 (*k*) 2			
42	Asundi Tank (*w*) ..	..	(*x*) 14	(*y*) 6 (*z*) 7½	(*m*) 4	(*n*) 4½	(*l*) 7	..	(*j*) 1 (*k*) 2			
43	Dharma Canal (a¹⁰) ..	..	..	..	4½	..	..	..	(*j*) 1 (*k*) 2			

NOTE.—(1) For lift irrigation in the Deccan Irrigation Circle the orders contained in G. R. No. 4771/27, dated 23rd December 1931, are that lift from Budkis should not be allowed at all in areas under the flow command of a canal and that in other areas it may be allowed only when the supply of water for irrigation is in excess of the demand at half the flow rates for all crops other than sugarcane for which full rate should be charged.

(2) For lift irrigation half the ordinary rates are charged in other circles.

(3) Double or treble the ordinary rates are charged as penal rates for taking water without permission.

(4) Leakage or percolation rates are the same as ordinary rates.

(5) Water-rates for non-irrigational purposes are charged at the rates sanctioned by Government in each case subject to the minimum rates fixed in G. R. No. 851, dated the 7th April 1924.

(6) In the D. I. C. monsoon or two seasonal crops which take pre-seasonal waterings between the 25th April and the break of the monsoon are charged the following water rates per acre according to the date of first watering applied for and sanctioned, *vide* G. R. No. 5602/27, dated 9th December 1931 :—

From the date		Rate for light type of crops.	Rate for medium type of crops.
		Rs.	Rs.
25th April	.. ..	5	7½
5th May	.. ..	4	6
15th May	.. ..	3	4½

(7) A reserve rate of Rs. 3 per acre as a minimum rate has been sanctioned for lands let out for cultivation in the basin of Lake Beale—*vide* G. R. No. 2484, dated 12th June 1925.

(8) A flat rate of Rs. 2-8-0 per acre of culturable area has been sanctioned for the supply of water from the irrigation channel of Sangvi village near Bhatgar—*vide* G. R. No. 1849/27, dated 5th January 1932.

(9) The supply of water to the roadside trees, etc., is charged as follows :—

Rs. 10 per 100 Nos. for trees, planted along field boundries, roadside, etc.

Rs. 1 per 100 Nos. of seedlings, shrubs etc.

(10) Long term fruit trees on the Nira Right Bank Canal are charged at half rates for the first five years from the date of their plantation vide G. R. Nos. 2353-27 dated 13th December 1932.

(11) Short term cane and other perennials are charged in accordance with the scales laid down in G. R. Nos. 8670 dated 13th January 1927 and 3098-27 dated 6th November 1929 and 5602/27 dated 4th December 1935.

* Lands wholly assessed at consolidated rates.

§ Block rate for blocks in 1: 3 proportion of sugarcane.

¶ Block rate for blocks in 1: 4 proportion of sugarcane.

** For single watering for crops for which no application for irrigation throughout the season was previously submitted.

A—For sugarcane and pan gardens.

B—For perennial crops other than sugarcane.

C—For pan gardens for the whole year. If water is given for part of the year the charge will be on the basis of thrice the medium seasonal rates for the seasons concerned—*vide* G. R. No. 5602/27, dated 9th December 1931.

D—For rice.

E—For monsoon crops other than rice.

K—For pomegranates.

M—For sugarcane.

X—For sugarcane and pan gardens double the seasonal rates and for other perennial crops single seasonal rates shall be charged.

(*b*) The rates for sugarcane and block rates are sanctioned in G. R. No. 5602/27, dated 28th November 1932. The rates for crops other than sugarcane are in force from 15th February 1931 to 14th February 1934—*vide* G. R. No. 5602/27, dated 9th December 1931. The same rates have been continued up to 14th February 1936—*vide* G. R. No. 5602/27, dated 23rd September 1933.

(*c*) Rates for sugarcane within the Poona City and Suburban Municipal and Cantonment limits or within one mile of those limits and for sugarcane in other areas are in force up to 14th February 1936—*vide* G. Rs. Nos. 5602/27, dated 9th December 1931, dated 28th November 1932 and 23rd September 1933. The rates for crops other than sugarcane to be in force up to 14th February 1936—*vide* G. Rs. Nos. 5602/27, dated 9th December 1931, 28th November 1932 and 23rd September 1933.

(*d*) Rates sanctioned in G. R. No. 5602/27 dated 9th December 1931, as amended by corrigendum No. 5602/27, dated 15th February 1933, to be in force with effect from 15th February 1931 to 14th February 1934. The same rates have been continued up to 14th February 1936—*vide* G. R. No. 5602/27, dated 23rd September 1933.

(*e*) The single-watering rate applies to one pre-seasonal or post-seasonal watering to a sanctioned crop. If more than one such watering is taken, the full seasonal rate will be charged unless specifically ordered otherwise. The single watering rate is not applicable to seasonal irrigation.

(*f*) For sugarcane the short-term cane rates as per scale sanctioned in G. R. No. 8670, dated 13th January 1927, (which may be in force on major irrigation works), for pan gardens the same rate as on the Mutha Canals and for other perennials single medium seasonal rates will be charged—*vide* G. R. No. 5602/27, dated 9th December 1931.

(*j*) From 15th June to 14th October.

(*k*) From 15th October to 14th June.

(*l*) From 15th February to 14th June.

(*m*) From 15th June to 14th October or 15th July to 30th November.

(*n*) From 15th October to 14th February.

(*s*) In force up to 15th February 1937—*vide* G. R. No. 5459/27, dated 13th May 1931.

(*u*) In force up to 14th February 1938—*vide* G. R. No. 466/27, dated 25th October 1935.

(*w*) Rates sanctioned in G. R. No. 6095, dated 22nd October 1924 and G. R. No. 3187/27, dated 22nd August 1929 to be in force up to 14th February 1940—*vide* G. R. No. 3187/27 dated 1st February 1935.

(*x*) For sugarcane, betel leaves, etc., for 12 months.

(*y*) For eight months from 15th June to 14th February.

(*z*) For eight months from 15th October to 14th June or 1st August to 31st March.

a Rates to be in force up to 14th February 1938—*vide* G. R. No. 5602/27, dated 4th December 1935.

a^1 Rates sanctioned in G. R. No 4855, dated 23rd December 1927, are to be in force up to 14th February 1937—*vide* G. R. No. 5956/27, dated 22nd October 1931.

a^2 Rates sanctioned in G. Rs. Nos. 825, dated 30th August 1924, and 825, dated 1st November 1926, and continued in G. R. No. 2881/27, dated 4th July 1929, are further continued up to 14th February 1940—*vide* G. R. No. 2881/27 dated 9th July 1934.

a^3 Rates to be in force up to 31st July 1938—*vide* G. R. No. 679/27, dated 11th October 1932.

a^4 Rates to be in force up to 15th June 1940—*vide* G. R. No. 2894/27, dated 1st June 1934.

a^5 Rates sanctioned in G. Rs. Nos. A-1-309, dated 15th February 1911, 5412, dated 15th December 1926, 2835/27, dated 4th October 1929, are to be in force up to 15th June 1940—*vide* G. R. No. 2835/27, dated 2nd July 1934.

a^6 Rates to be in force up to 14th February 1940—*vide* G. R. No. 2691/27, dated 9th July 1934.

a^7 For ordinary rabi.

a^8 For restorative crops grown after rice.

a^9 In either kharif or rabi season.

a^{10} Rates sanctioned in G. R. No. 293/27 of 9th August 1927 are to be in force up to 31st March 1937—*vide* G. R. No. 293/27, dated 14th February 1931.

(b^1) Rate for perennial 12 months.

(b^2) Rate for perennial 8 months.

(b^4) Single seasonal rates are charged—*vide* G. R. No. 3343/27, dated 8th October 1929.

Administration Report of Irrigation
Works in the Bombay Province
for the year 1935–36 : Review of —.

GOVERNMENT OF BOMBAY,

PUBLIC WORKS DEPARTMENT.

Resolution No. P. 22.

Bombay Castle, 18th August 1937.

RESOLUTION OF GOVERNMENT.

The Irrigation works dealt with in this Report which covers the period 1st April 1935 to 31st March 1936 fall into two categories, viz. (i) Tanks and canals for which Capital and Revenue Accounts are kept, and (*ii*) Small tanks, bandharas and drainage channels, for which neither Capital nor Revenue Accounts are kept. The works included under (i) are described in detail in Section I of the Report. The works mentioned under (ii) are small and numerous and a brief account of them is given in Section II of the Report.

2. The total capital outlay on works for which Capital and Revenue Accounts are kept, to the end of the year under review, amounted to Rs. 10,72,48,484.

Including an area of 8,809 acres, on which a consolidated water and land assessment is levied, the total area irrigated was 214,303 acres, as compared with 214,253 acres, in the previous year.

The gross assessed revenue amounted to Rs. 28,03,346 compared with Rs. 25,66,862 during the previous year and Rs. 24,71,287, the average of the past three years.

The unrealised balance of revenue demands at the close of the year amounted to Rs. 16,03,443. A portion of this amount has since been recovered and steps have been taken to effect the early recovery of the balance outstanding.

The working expenses amounted to Rs. 17,23,000 compared with Rs. 15,45,418 in the previous year.

The net revenue (after deducting working expenses) amounted to :—

	Rs.
(i) On the basis of assessment	10,80,346
(ii) On the basis of realisations	11,07,067

as compared with Rs. 10,21,444 and Rs. 14,50,667, respectively, during the previous year.

The statement embodied in paragraph 13 of the Report shows the financial results of the more important works for which Capital and Revenue accounts are kept.

3. The total area irrigated by works for which neither Capital nor Revenue accounts are kept was 158,576 acres, and the gross revenue realised was Rs. 7,98,261. The total expenditure incurred on improvements and repairs, inclusive of the collection charges, amounted to Rs. 5,33,611.

By order of the Governor of Bombay,

W. X. MASCARENHAS,
Deputy Secretary to Government.

To

The Finance Department.
The Revenue Department.
The Commissioner, Northern Division.
The Commissioner, Central Division.
The Commissioner, Southern Division.
The Director of Land Records.
The Director of Agriculture.
The Commissioner of Labour and Director of Information.
All Superintending Engineers of Circles.
All Collectors (except those of Bombay and Bombay Suburban, Thana and Kolaba Districts).
The Accountant General, Bombay.
All Executive Engineers in charge of Irrigation Works.
The Secretary to the High Commissioner for India (by letter).

BOMBAY : PRINTED AT THE GOVERNMENT CENTRAL PRESS.

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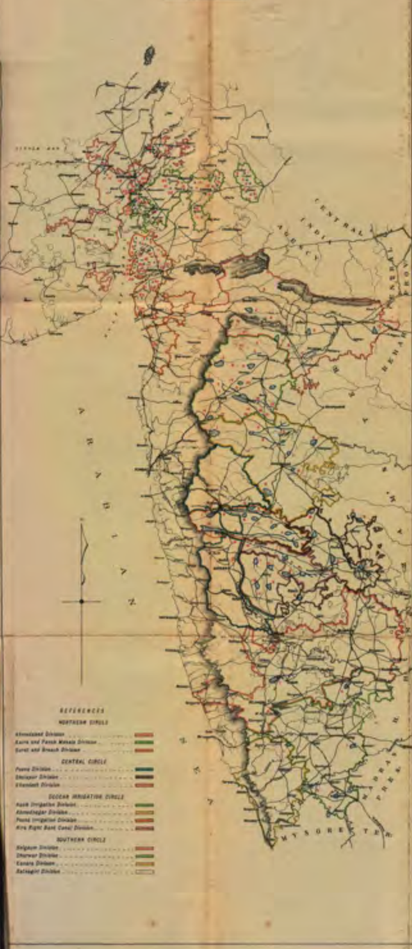
MAP OF THE BOMBAY DECCAN & GUJARAT

TO ACCOMPANY THE IRRIGATION ADMINISTRATION REPORT FOR 1935-36

SCALE 40 MILES TO 1 INCH


CENTRAL INDIA AGENCY
ARABIAN SEA
MYSORE STATE
REFERENCES
NORTHERN CIRCLE
Ahmedabad Division
Kaira and Panch Mahals Division
Surat and Broach Division
CENTRAL CIRCLE
Poona Division
Sholapur Division
Khandesh Division
DECCAN IRRIGATION CIRCLE
Nasik Irrigation Division
Ahmednagar Division
Poona Irrigation Division
Nira Right Bank Canal Division
SOUTHERN CIRCLE
Belgaum Division
Dharwar Division
Kanara Division
Ratnagiri Division

NORTHERN CIRCLE

AHMEDABAD DIVISION

AHMEDABAD DISTRICT

Works in Operation

[illegible]

KAIRA DISTRICT

Works in Operation

[illegible]

KAIRA & PANCH MAHALS DIVISION

PANCH MAHALS DISTRICT

Works in Operation

[illegible]

KAIRA DISTRICT

Works in Operation

[illegible]

SURAT & BROACH DIVISION

(1) BROACH DISTRICT

Works in Operation

[illegible]

(2) SURAT DISTRICT

Works in Operation

[illegible]

CENTRAL CIRCLE

POONA DIVISION

SATARA DISTRICT

Works in Operation

[illegible]

SHOLAPUR DIVISION

SHOLAPUR DISTRICT

Works in Operation

[illegible]

Incomplete Works

[illegible]

SATARA DISTRICT

Works in Operation

[illegible]

Incomplete Work

[illegible]

KHANDESH DIVISION

WEST KHANDESH DISTRICT

Works in Operation

[illegible]

Incomplete Work

[illegible]

EAST KHANDESH DISTRICT

Works in Operation

[illegible]

DECCAN IRRIGATION CIRCLE

NASIK IRRIGATION DIVISION

NASIK DISTRICT

Works in Operation

[illegible]

Work under Construction—Incomplete Work

[illegible]

AHMEDNAGAR DISTRICT

Works in Operation

[illegible]

AHMEDNAGAR DIVISION

AHMEDNAGAR DISTRICT

Works in Operation

[illegible]

Work under Construction and in Operation

[illegible]

POONA IRRIGATION DIVISION

POONA DISTRICT

Works in Operation

[illegible]

Incomplete Works

[illegible]

Works under Construction and in Operation

[illegible]

SATARA DISTRICT

[illegible]

NIRA RIGHT BANK CANAL DIVISION

SATARA DISTRICT

Works under Construction and in Operation

[illegible]

SHOLAPUR DISTRICT

[illegible]

SATARA DISTRICT

Work in Operation

[illegible]

SHOLAPUR DISTRICT

Incomplete Work

[illegible]

SOUTHERN CIRCLE

BELGAUM DIVISION

BELGAUM DISTRICT

Works in Operation

[illegible]

DHARWAR DIVISION

DHARWAR DISTRICT

Works in Operation

[illegible]

BIJAPUR DISTRICT

[illegible]

KANARA DIVISION

KANARA DISTRICT

Work in Operation

[illegible]

[illegible]